

# NetworkWorld

The leader in network knowledge ■ [www.nwfusion.com](http://www.nwfusion.com)

July 29, 2002 ■ Volume 19, Number 30

## VoiceXML making Web heard in call centers

■ BY ANN BEDNARZ AND PHIL HOCHMUTH

Aspect Communications this week will announce call center software that essentially will enable users to navigate Web content via voice commands.

The Aspect news comes on the heels of Avaya's announcement last week of interactive voice response (IVR) software that will make data contained in corporate directories and databases available to callers via spoken commands.

At the heart of both efforts is

support for the latest release of VoiceXML (VXML), Version 2.0. An extension to the XML document formatting standard, VXML streamlines development of voice-driven applications for retrieving Web content.

While using voice commands to retrieve information is a routine IVR task, emerging tools support more complex, speech-driven activities, such as filling out forms or retrieving product information, all in a standards compliant rather than proprietary environment.

See Call centers, page 12

■ For more call center coverage, see page 13.

## Microsoft on .Net: Hard work ahead

■ BY JOHN FONTANA

REDMOND, WASH. — Microsoft last week said it was finished with the initial phase of its .Net rollout — providing development tools and basic standards support — and now is focusing on building the infrastructure needed to support Web services. That includes real-time communication capabilities, secure authentication, reliable transactional messaging and a single data store technology.

Net executives are glad to see Microsoft is ready to attack difficult .Net infrastructure issues. Users say the .Net infrastructure today consists of mostly retrofitted products that aren't well integrated.

But much like two years ago when Microsoft introduced .Net, critics say Microsoft's second .Net wave, See Microsoft, page 60

### Self-evaluation

Microsoft's Chief Software Architect Bill Gates gave his company this report card last week on its 2-year-old .Net initiative.

Goal	Grade
Rally the industry	A
Tools and infrastructure	A
Building block services	C
Software as service	C
Federation	Incomplete
Transformative user experience	Incomplete

## Beyond firewalls

There's more to security than firewalls. Network World Global Test Alliance member Miercom put six antivirus tools and six content-filtering devices to the test, and came away impressed with the results.

Page 37

## WorldCom users hedge bets

■ BY JENNIFER MEARS

Despite WorldCom's claims that service will continue as usual during financial restructuring, the company's bankruptcy filing last week has customers reviewing contracts and network options.

National Semiconductor in Santa Clara has used the nation's No. 2 long-distance carrier for remote access services for the past three years and is looking for an alternative carrier. CIO Ulrich Seif notes switching could be fairly easy because of the limited nature of the WorldCom service National uses. "It's not a small project, though it's a lot easier than if WorldCom was our voice and

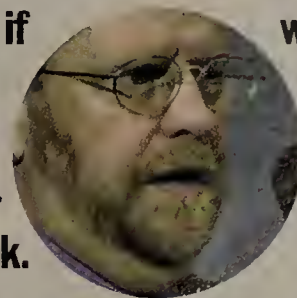
See WorldCom, page 58

"I would not have taken this job if I thought we were going to be out of business next week. I'm not a bankruptcy expert."

WorldCom CEO John Sidgmore, addressing reporters April 30

"This is not the path we wanted to take, but it is clearly the right thing to do."

WorldCom CEO John Sidgmore, at a press conference July 22, a day after filing for bankruptcy



AP PHOTO/KENNETH LAMBERT

■ WorldCom executives have done a grave disservice to those who built MCI and UUNET, says columnist Johna Till Johnson. Page 27.

■ This bankruptcy is a triple whammy for an already-reeling telecom community, says *Network World* Editor in Chief John Dix. Editorial, page 34.



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# NetworkWorld

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### There's more to security than firewalls.

Network World Global Test Alliance member Miercom put six antivirus tools and six content-filtering devices through their paces. The results were quite favorable.

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### Top ISP report:

AT&T comes in first in the national retail and business-to-business categories. BellSouth wins in the regional retail category. Find out how your ISP stacks up.

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# NetworkWorldFusion

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## Interactive

### Cybersecurity law

Find out what you need to know about pending security legislation and how it could affect you in this online exclusive story from our report "Security: Defending the extended enterprise."

**DocFinder: 1537**

### Forum: Microsoft and home networks

Redmond is making a foray into home networks, preparing to unveil a line of 802.11b-compatible wireless products this fall. Will this be a blessing or a curse for the industry?

**DocFinder: 1538**

### Call for entries: User Excellence Award

Take a shot at winning our 18th annual User Excellence Award competition for your latest and greatest network project. Fill out our online nomination form.

**DocFinder: 1234**

## Seminars and Events

### VoIP training comes to you!

Looking for a cost-effective way to train your team? Trying to widen your department's skill set on a shrinking budget? With equipment provided by Avaya, NetSmart's on-site voice-over-IP training is the perfect way to educate your staff without leaving the office.

**DocFinder: 9945**

## Columnists

### Compendium

Useful downloads  
Fusion Executive Editor Adam Gaffin wants you to come over to our newly revamped Downloads area, where you can find useful applications for security, network design, network management and much more.

**DocFinder: 1539**

### Help Desk

MAPIsend and network management  
Columnist Ron Nutter helps a user of Nortel Optivity send e-mail alerts.

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### Home Base

Where should I sit?  
Columnist Jeff Zbar looks at Cigna HealthCare, which provides teleworkers a place to call home — in the office.

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News

## Bits

## Survey: IT defenses still need shoring up

■ The risk of the typical U.S. company suffering at least one major cyberattack within the next year is strong, and not enough businesses are taking appropriate steps to defend themselves, according to a survey of 602 IT professionals released last week by the Business Software Alliance. Of those responsible for security issues, 60% said they believe it is likely companies will get hit with at least one major cyberattack within the next year. While more than half felt U.S. businesses have improved their security defenses since Sept. 11, 45% said companies are still not prepared for a major cyberattack. U.S. businesses are devoting fewer resources to defending against cyberattacks than they did attempting to solve the Y2K problem, according to 47% of those surveyed. Seventy-one percent said that businesses should concentrate more on cyberdefense. On the positive side, 94% said every computer at their company had antivirus software, and 92% said their company uses a firewall to protect against network threats.

## Cisco snaps up Ayr Networks

■ Cisco announced last week it has entered into a definitive agreement to buy privately held Ayr Networks, a provider of high-performance distributed network services and scalable routing software. While Cisco owns a minority stake in Ayr, the buyout deal will see Cisco offering company stock worth up to \$113 million for the outstanding shares of Ayr. Ayr's technology will be integrated into the Cisco IOS software.

## Microsoft vows to hire 5,000, boost R&D

■ Bucking the trend of corporate downsizing in the face of a struggling economy for IT companies, Microsoft last week said it plans to hire another 5,000 developers in the next year. The announcement comes as other major technology companies, including Intel and Hewlett-Packard, continue to announce layoffs. Microsoft also said that spending on research and development during fiscal year 2003 would reach about \$5.2 billion, a 20% boost over fiscal year 2002, which ended June 30.

### COMPENDIUM

## Google art

When you use Google to search Usenet postings, it color-codes your search words in messages it finds. Paul Johnson has been playing with this to create art where art has no business belonging in straight-ASCII messages on Google, including a landscape and a glant "Hi!"

See this and more in Compendium: [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1548.

## Lawmaker files IT vigilantism bill

■ In a widely anticipated move that has stirred much protest, U.S. Rep. Howard L. Berman (D-Calif.) introduced legislation last week that aims to foil peer-to-peer piracy by giving copyright holders the ability to employ a variety of technological tools such as file blocking, redirection, spoofs and decoys. The bill targets decentralized peer-to-peer networks, such as Morpheus, which have recently become the focus of copyright holders' attention given their swelling number of users and the difficulty they present when it comes to cracking down on piracy. In introducing the bill, Berman told Congress that while there is no "silver bullet" to stop piracy on decentralized peer-to-peer networks, he hoped to "enable responsible usage of technological self-help measures to stop copyright infringements on [peer-to-peer] networks." He proposed a general safe harbor rule under which copyright holders would be able to employ technological measures to protect their copyright works, provided these measures do not damage users' computers and files or cause economic loss of more than \$50 per impairment.

## ■ The Good The Bad The Ugly



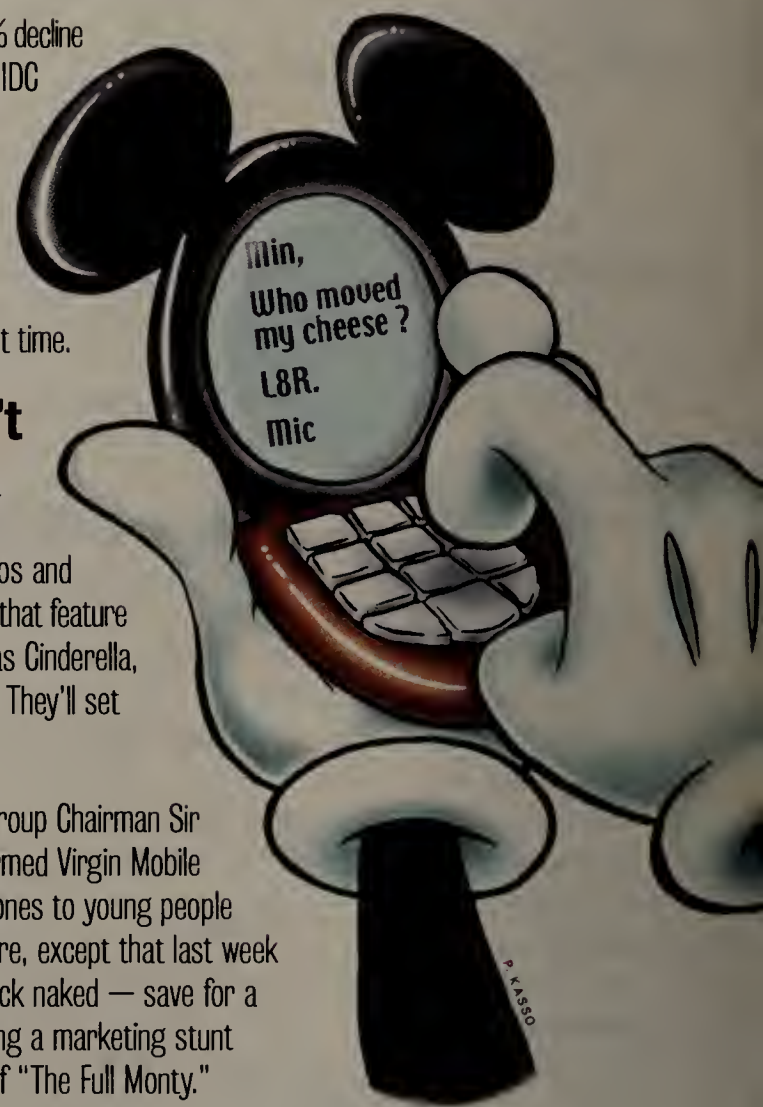
**Seeing light.** Despite a 4% decline in IT hardware spending worldwide, IDC insists that higher spending on software and services will boost overall IT expenditures 3.7% this year. IDC sees 9% growth in 2003, which would push worldwide spending over \$1 trillion for the first time.



**Action figures aren't enough?** Motorola and Walt Disney are teaming up to make cordless telephones, two-way radios and other electronics — for children — that feature popular cartoon characters such as Cinderella, Mickey Mouse and Buzz Lightyear. They'll set you back \$60 a pop. ➤



**Towel, please.** Virgin Group Chairman Sir Richard Branson and his newly formed Virgin Mobile U.S.A. also are pitching mobile phones to young people — the 18-to-24 crowd. No sin there, except that last week Branson was doing his pitching buck naked — save for a strategically placed phone — during a marketing stunt that included the Broadway cast of "The Full Monty."



## ACLU sues over site-blocking lists

■ The American Civil Liberties Union filed a suit last week challenging copyright rules that prevent researchers and consumers from examining lists of sites blocked by Internet filtering software. The lawsuit, filed in Boston, takes on a provision in the 1998 Digital Millennium Copyright Act that makes it illegal to circumvent technological protection measures. The ACLU said in a statement that this provision violates users' fair use rights, making it illegal for them to "look under the hood of the blocking products they buy." Because companies that produce Internet filtering software often encrypt their lists of blocked sites, a user would have to hack the encryption to access the information, violating the DMCA's circumvention provision. The suit was filed on behalf of researcher Benjamin Edelman, who said he wants to examine a blocking program produced by Seattle's N2H2, without worrying about legal ramifications.

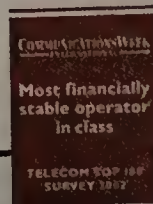
## CA and Ranger end proxy battle

■ Computer Associates last week announced it has come to an agreement with the investment firm that for the second consecutive summer launched a proxy fight to displace CA board members. Ranger Governance and CA entered an agreement that has CA paying the Dallas firm \$10 million in exchange for it ending its current proxy fight and agreeing not to initiate another for five years.



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# RealNetworks opens up to serve all

Helix Universal server delivers rival Microsoft's Windows Media format.

■ BY JASON MESERVE

Companies looking to deliver streaming media content in multiple formats from one source have a new alternative from an unusual source: RealNetworks.

The company announced last week that its Helix Universal Server, part of a new open source code-sharing initiative, can natively provide content encoded in Real, Apple QuickTime and the newer MPEG-4 standard format, and the proprietary format of its rival, Microsoft's Windows Media.

In most circumstances, a com-

pany wanting to deliver content in the three popular proprietary formats (Real, Microsoft and QuickTime) would need servers for each content type or some type of caching product or service provider option. With Helix Universal Server, the three formats can be served simultaneously along with more than 50 other types of media from one box, reducing the amount of hardware needed to serve a diverse array of content types.

Another potential benefit for corporate users is the fact that Helix Universal Server runs on 11

platforms, meaning Windows Media can be served from non-Windows 2000 operating systems.

"Helix Universal Server represents our new products moving forward," says Brad Hefta-Gaub, the vice president of product development for media systems at Real. "We will also offer a version of the server that supports just Real audio and video for customers that want it."

As part of the server announcement, Real says it is releasing Helix Producer, which is used to encode content into the RealVideo 9 format. The new ver-

sion of the producer supports only the Real format.

Helix Universal Server and the producer application are the first products under Real's new Helix open source code and community initiative designed to spur development around one encoding, delivery and playback platform. At the center of the initiative will be the Helix DNA, code used for running Real's server, encoding and player client software.

There will be two types of licenses — the RealNetworks Community Source License (RCSL) and the RealNetworks

Public Source License (RPSL). Products developed under the RCSL have to be compatible with Helix, while software developed under the RPSL has to be open source, Real says.

Real plans to make the source code of its Helix client available within 90 days, and the server and encoder source code by year-end, the company says. Real plans to submit the RPSL to the Open Source Initiative for certification as an open source license.

While the company is making some of its technology open source, it is withholding the technology and algorithms behind its codecs used to compress audio/video content.

"What they're doing is releasing code up to the point of the actual codecs. That's where it stops," says Maximilian Flisi, a research analyst at IDC. "If they did that they would be fully open source . . . they would be naked."

One potential hurdle for Real could stem from its use of Windows Media technology. The company did not license it from Microsoft. Rather, it used "clean room" (figuring out how something works without seeing the source code) techniques to determine how a Windows Media-encoded file is delivered from the server to the player. It is mimicking the techniques in Helix Universal Server.

Microsoft would not comment on potential legal repercussions until it saw more of the Real implementation.

Real and Microsoft are locked in a battle over which has the best streaming media technology. Microsoft's advantage is that it gives away its player software with every version of Windows sold and its server software with the Windows 2000 operating system. Real says it hopes Helix can persuade developers to pay for a server that can deliver multiple formats and not be limited to just the Windows platform.

Helix Universal Server is available now with pricing based on the maximum server capacity measured in megabits per second. A free version of Helix Producer is available for Linux and Windows desktops.

*Material from the IDG News Service was used in this story.*

# SSL gets respect from IPSec vendors

Check Point to add browser-based remote access to its VPN gear.

■ BY TIM GREENE

Secure Sockets Layer-based remote access is about to hit the big time.

Check Point Software, one of the largest VPN vendors, this week promises support for this browser-based technology, and a new entrant in this area, Whale Communications, will introduce hardware and software to enable secure Internet connections for corporate networks.

Check Point says a software release scheduled for September will let businesses support both browser-based and IP Security (IPSec) remote access, requiring only one remote access gateway rather than two for those businesses that want to offer varying levels of access to their networks.

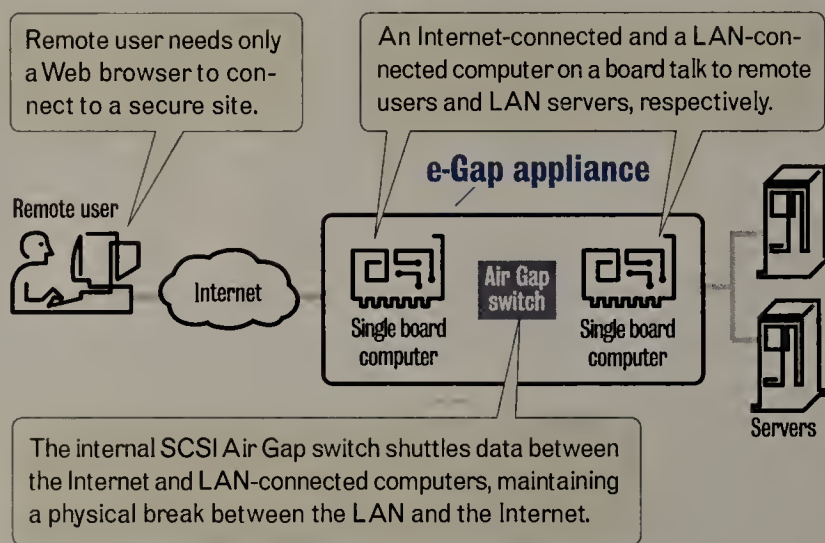
This is the first wave of a trend, according to a prediction by Infonetix. "Check Point is the first major IPSec vendor to announce this, but others will follow," says Jeff Wilson, Infonetix' director of research. "As soon as they run into SSL competitively or see the market start to grow quickly, they will get involved."

SSL remote access alternatives use SSL support that comes standard with most Web browsers to create encrypted sessions between a remote PC connected to the Internet and servers behind corporate firewalls. A group of competitors including Aspell, Aventail, Netsilica, SafeWeb and now Whale focus on this technology almost exclusively.

The technology eliminates the need to install separate client software on remote PCs as is the case with IPSec VPNs. Instead, the

## Remote access security

**Whale Communications' e-Gap remote access appliance includes a switch that maintains a physical disconnect between secure servers on corporate networks and the Internet.**



browser is the client. With some vendors, such as Check Point, SSL allows access only to Web-enabled applications and file transfers. Some vendors, such as Neoteris, support applications that are not Web-enabled. "They're getting better. They're not just doing Web proxying, they're proxying on any TCP or [User Datagram Protocol] port," says Zeus Kerravala, an analyst with The Yankee Group.

While SSL remote-access appliance shipments totaled \$1 million worldwide for the first quarter of 2002, Infonetix projects that the year-end total will be \$60 million. It projects a 143% compound annual growth rate for sales of this gear over the next four years. (Another SSL story is on page 31.)

Check Point calls its new SSL capability "Clientless" VPN, and it's embedded in the Check Point's Service Pack 3 version of its server software.

Check Point also is adding support for the Microsoft VPN client that comes standard with Microsoft's desktop software. While the Microsoft VPN support is based on IPSec and Layer 2 Tunneling Protocol, not SSL, it is similar to the browser-based remote access in that it requires no additional software on the remote PC. If the machine has a Windows operating system, it already has the VPN support.

While Check Point is broadening its scope, Whale is focusing on SSL remote access with its e-Gap appliance. Within a single box, e-Gap contains two single-board computers, one connecting to the Internet and the other to the LAN. The two are separated by a SCSI switch that connects with

only one of the computers at a time and shuttles data between them (see graphic). This insulates the LAN from any possible direct contact with the Internet.

Robot-maker Fanuc Robotics in Rochester Hills, Mich., uses e-Gap to supplement a Nortel Contivity dial-up IPSec VPN, each technology having its own role. When it chose Whale, the company was seeking a way for employees to access e-mail and other key data while they are at customer sites or traveling through airports with Internet kiosks. "We use Whale [SSL capability] for quick access to our network from anywhere in the world," says Travis Robson, Fanuc's manager of systems, telecommunications and networking. "But if you're at home with a high-speed cable modem, use the VPN."

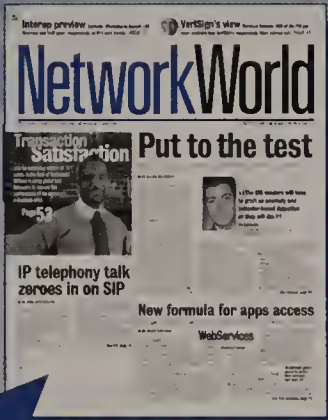
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# Incognito launches fault-tolerant appliances

■ BY DENI CONNOR

VANCOUVER, B.C. — Incognito Software announced two fault-tolerant server appliances last week that promise to help large businesses and service providers manage IP addresses.

Incognito's Multi-Server Appliance (MSA) consists of the company's IP Commander and DNS Commander software on blade servers from Cubix, a vendor known for communication and terminal server hardware. The blades manage DNS addressing — the process of mapping text-based URLs into numeric IP addresses — and the Dynamic Host Configuration Protocol (DHCP), in which IP addresses are dynamically assigned to computers each time they access the Internet.

DNS Commander lets users create, administer and manage DNS servers and prevents vulnerabilities that can occur from the use of the Berkeley Internet Name Domain utility. IP Commander integrates DNS with DHCP and the Time of Day and Trivial File Transfer Protocol services.

Mike Mason, network engineer at insurance firm Country Companies in Bloomington, Ill., uses Incognito's DNS and IP Commander software and says he is interested in trying MSA. Mason has as many as 6,500 users that use the company's DHCP and DNS servers every day.

"At one time we had a team of three to seven people assigning DNS to static IP addresses," Mason says. "Using [Incognito's] software is just about as easy as point-and-click — we add the name in, add a description and click OK."

Experts recommend that DNS and DHCP servers be fault-tolerant because if a company's DNS servers go down, they would lose contact with the Internet and their e-mail, and all network access would be affected.

"We have a DNS master and four secondary DNS servers that load balance traffic and fail-over for each other," Mason says. "When DHCP gives out an IP address, it passes that information to the DNS server. If a DHCP server fails, a second server acts as a disaster-recovery machine if it doesn't hear the heartbeat of the primary DHCP server."

Two fault-tolerant Incognito MSA models are available — MSA 300 and MSA 800. The MSA 300 contains three blade servers: one is the primary DHCP blade; one is the primary DNS blade; and the third serves as a back-up DHCP/DNS blade should the other blades fail. In the MSA 800, the customer can configure the eight server blades to his DNS/DHCP needs.

Incognito's blades and DNS/DHCP software compete with software and hardware from Cisco and Lucent. The company's software also will work on any indus-

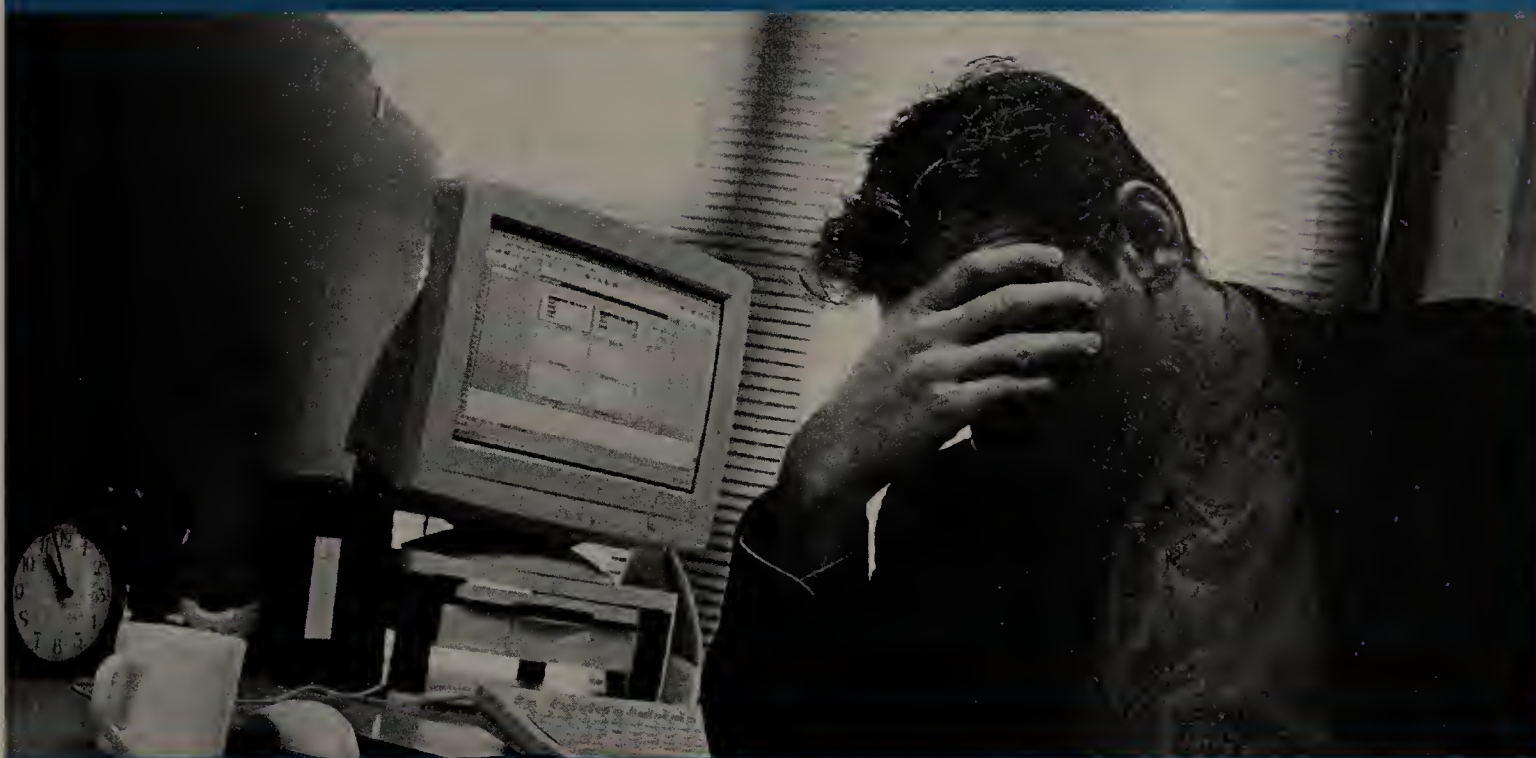
try-standard server, and Compaq, RLX Technologies or Hewlett-Packard blades.

The MSA 3000 costs \$19,450. The MSA 800 starts at \$22,000. The IP Commander

software, bought separately, starts at \$500; the DNS Commander software is \$5,000. Both MSAs are available now.

Incognito: [www.incognito.com](http://www.incognito.com)

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### More online!

Do DNS security risks  
exist in your network?

**DocFinder: 1549**



# Opnet shows real-time analysis of apps

■ BY DENISE DUBIE

BETHESDA, M.D. — Opnet Technologies next month will upgrade its flagship software suite with real-time troubleshooting features that industry watchers and customers say help spot and fix application performance problems.

Set to be unveiled at the company's annual Opnet-network conference, Opnet 9.0 is designed for users looking to troubleshoot application performance on a day-to-day basis. The software collects application performance data, such as response time and bandwidth usage, from network devices, servers, clients and databases, and merges the data to give users a measure of application performance across disparate network components. Most application performance tools collect data from the separate elements, and network managers must manually compile the information to get one complete view of application performance.

"We're using the tools to tell us where the problem is — the network or server or client — and then we can focus on putting the resources in the right place," says a vice president at a major financial services company, who requested anonymity.

"We collect multiple traces and try to piece them together. It's manual and time-consuming and difficult to troubleshoot application

## Opnet 9.0 software now helps customers track application performance problems.

Network managers can view a virtual representation of the router, servers and applications that affect specific users.

The software tracks a transaction from end-user request across the routers and servers and back again.

performance in real time when looking across different platforms," he says.

Other new features include an application recode tool that tells a user what part of an app should be rewritten to improve its performance across a network. Another tool offers the same type of suggestions for router configurations.

Deb Curtis, a research director at Gartner, says Opnet's latest release can give network managers a quick evaluation of what compo-

nent or application needs to be tweaked.

Because it includes modeling technology, Curtis says Opnet can give users more insight into how the network might need to be configured to meet future needs. "Opnet software can help IT staff plan good IT investments based on real traffic and end-user service levels," she says.

She says Opnet software could help to further pinpoint the source of poor performance when working in conjunction with network management software from companies such as Computer Associates, Hewlett-Packard and IBM Tivoli. Curtis says Opnet 9.0 competes with products from Compuware, but adds that Opnet does in one product what Compuware does in two.

Opnet software is installed on a Sun Solaris or Windows NT or 2000 server. The company provides agents that are installed on servers and devices, such as routers and switches, throughout a network to capture application and transaction performance data. Opnet software also can use data collected by Network Associates Sniffer, NetScout and Concord agents and probes.

In beta testing, Opnet 9.0 costs between \$40,000 and \$100,000, depending on implementation.

Opnet: [www.opnet.com](http://www.opnet.com)

# C&W launches back-up and recovery services

■ BY JENNIFER MEARS

SANTA CLARA — Enterprise customers looking for a service provider to help back up and protect critical data and applications will find a new option with Cable & Wireless, which is slated to roll out its suite of high-availability and recovery offerings this week.

The telecommunications company is using the capabilities of its Exodus Communications and Digital Island acquisitions to provide data protection services aimed at keeping online functions running in the face of internal network glitches or more serious disasters, says David Greene, a vice president for Exodus, a Cable & Wireless service.

Exodus has provided services such as risk assessment and recovery-planning consulting, managing high-availability and alternate IT sites, and business-impact analysis for six years. C&W says it is standardizing these services to

make them more cost-effective and easier to deploy.

The services are aimed primarily at large companies in the financial services, healthcare, entertainment and media industries, Greene says.

With the offerings, C&W enters a market that is led by IBM, SunGard and Hewlett-Packard. Tony Adams, principal analyst at Gartner, says C&W is in a position to readily compete with these vendors because of its depth of expertise and global network.

"Cable & Wireless hit all the high notes with this offering," Adams says. "They seem to have a good suite of services."

Other carriers, including AT&T, offer similar services.

"What we found post-Sept. 11 is that people who hadn't looked at business continuity and disaster recovery beforehand wanted to get into a discussion of what we could do for them," Greene says.

C&W's offerings let customers

## Backing it up

C&W is offering back-up and recovery services. Here's the rundown:

- **Cold site.** Customer reserves space in a data center that becomes available within 24 hours after a disaster is declared. C&W can help customers get quick access to equipment so that the site is running within 72 hours. Pricing starts at \$2,000 per month.
- **Warm site.** Equipment is located in a C&W data center and pre-configured to run critical applications, if needed. Recovery time is about 12 hours. Pricing varies based on customer need.
- **Hot site.** A live site for critical applications is managed and monitored by C&W and is constantly updated with relevant data from the origin site so that the customer can avoid downtime. Pricing varies based on customer need.

choose the service they need based on the length of time they can be without specific online functions: less than 12 hours, more than 12 hours and more than 72 hours. The services can include initial consultation and planning, setup and configuration of equipment, managed services such as security and con-

tent delivery, and maintenance and testing.

"It's important that we offer all three versions within one location," Greene says. "Customers can mix and match. We can identify in the planning stage which portions of the environment require which level of backup." ■

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NETWORKS



## Call centers

continued from page 1

In Aspect's case, customers will be able to use the same databases, application servers and business rules to process voice self-service interactions as they do to process Web self-service transactions. The firm is building the voice-activated service features into its existing software suite, Aspect IP Contact Suite.

Avaya is adding VXML capabilities to Version 9.0 of its Avaya IVR server. Previous versions offered speech-recognition features, but 9.0 is the first to embed VXML support.

Adoption of standards such as VXML is just one contributor to an overall trend to increase the sophistication of IVR products, making them less dependent on menus that bury information several layers deep and better able to handle queries phrased in natural language, says Martin Prunty, president of consulting firm Contact Center Professionals.

This evolution is not unlike that of Web-search technology, which has progressed from keyword dependencies to natural language-based search tools developed by vendors such as Ask Jeeves, Prunty says.

Companies today are starting to realize that the phone and the Web should not be treated as separate customer links, with independent data retrieval and collection systems, but as elements of a corporatewide CRM strategy, Prunty says.

"Customer channels, whether they're using people or self-service, have to be integrated and have to be part of an overall strategy of dealing with customers,"

## Call center conundrum

**The ability to continuously update customer and product profiles is the largest call center technology concern among 311 companies.**

Updating customer and product profiles  
**58%**

Managing complex procedures  
**53%**

Data consistency  
**36%**

Telephony technology  
**32%**

SOURCE: IDC

he says. "But that's not how it is in the real world today."

### Investments growing

In general, call centers are gaining a growing share of IT budgets as companies seek to improve customer service and better utilize customer service personnel and resources. Among 672 companies surveyed, IDC found 35% have a call center and 11% say they soon will need one.

Among 321 companies with plans to invest in their call centers, 54% will acquire new technology, 31% will enhance existing systems, 12% will build new functions, and 3% will turn to an application service provider, IDC says.

Companies are interested in call center technology in part because they are trying to keep their loyal customers — an ongoing challenge that tends to get more attention in times of economic slowdowns, IDC says. The research firm found the No. 1 reason companies invest in call center technology is to improve customer support (see graphic).

That is what led Armstrong World Industries, a Lancaster, Pa., maker of industrial and home flooring and ceiling products, to its latest call center upgrade. The manufacturer recently installed Version 7.0 of Avaya IVR to solve a communication problem between the company's call center and the retail stores that carry Armstrong products.

In the past, sales representatives from retail home-improvement stores would deluge Armstrong's call center, checking on the status of customers' orders and tying up Armstrong's call agents, says Jeff Fountaine, net-

work analyst with the company.

Now salespeople at home retail stores can tap into Armstrong's order-processing system and check on orders by speaking the order number into the system.

The Avaya IVR server connects calls from an Avaya Definity G3R PBX to the back-end systems, housed on an AS/400 and separate SAP servers.

Fountaine says speech recognition was necessary because of Armstrong's alphanumeric purchase-order system, which prevented use of a phone keypad for entering information. The results of the system have pleased Armstrong and its partners.

"The IVR system has cut our call volume in half," Fountaine says, which equates to 15,000 order checks per month that do not have to be handled by a representative.

"Another benefit is the good will it brings between Armstrong and our home center partners," he adds, because retail sales representatives now can get information on demand for customers.

## Expected gains

**Among 315 companies surveyed, the vast majority expect to achieve better customer service through their call center systems.**

Improved customer service  
**91%**

Improved productivity  
**34%**

Quicker update of data to sales and support  
**32%**

Increased integration of sales/customer care  
**30%**

Support for service and sales via the Internet  
**29%**

Decreased costs  
**23%**

SOURCE: IDC

### Changing landscape

Aspect is unveiling its voice self-service software at this week's International Call Center Management (ICCM) Conference & Exhibition in Chicago. Advanstar Communications, the show's organizer, says 5,000 attendees are expected.

Lori Bocklund, vice president of call center consultancy Vanguard Communications and a speaker at the ICCM show, cau-

tions call center technology buyers to focus on business requirements before shopping for new products.

She warns the market has gotten ahead of buyers.

"There's more technology

not fit with their other objectives," she adds.

Others announcing call center products this week include:

- Rockwell FirstPoint Contact, which has beefed up its FirstPoint Enterprise 2002 platform to

**“If people don't plan for VoIP and put together a migration strategy, they're just going to buy something cool because some vendor bends the right ear.”**

**Lori Bocklund**

Vice president, Vanguard Communications

than people know what to do with," Bocklund says. That's not necessarily bad, but it can be overwhelming for buyers — who need to figure out what software and equipment they need and how new products will work with the gear they have before making a purchase, Bocklund says.

### Big changes

Companies face big changes in applications and network infrastructure, Bocklund says. On the applications side, vendors are working to off-load call routing, queuing and reporting tasks from the PBX to server-based applications.

In call center networks, the issue is migrating from circuit-switched to IP-based platforms. Voice-over-IP networks promise to decrease costs and drive productivity by merging separate voice and data services on a unified infrastructure, reducing toll charges and enabling the development of more sophisticated converged applications, such as Web chat. VoIP could help companies simplify the integration and management of distributed voice and Web customer services.

However, implementing VoIP networks can be costly and complex. Companies should consider getting their feet wet with VoIP by deploying a trial application that's not mission-critical, Bocklund says. She stresses the importance of careful planning.

"If people don't plan for VoIP and put together a migration strategy, they're just going to buy something cool because some vendor bends the right ear," Bocklund says.

"Then they're going to start heading down a path that may

include skills-based routing features for e-mail, Web, wireless and VoIP communications. The new Advanced Intelligent Router feature identifies agents with appropriate skills and can route messages accordingly. Queue Optimizer lets customers choose when they would like the system to call back, rather than waiting.

- Blue Pumpkin, which is launching its new Workforce Optimization Suite. The suite pools two new performance-based modules — Activity Manager, which tracks how call center employees spend their time, and Advisor, which highlights agents' successes and problem areas — with existing scheduling components.

- Vertical Networks, which has aimed new IVR technology in its Call Management Suite software at smaller shops, for whom the price of IVR technology often is prohibitive.

The application runs on the vendor's InstantOffice line of converged PBX phone systems for small and midsize companies and can provide call routing and queuing, along with IVR applications for letting customers interface with the phone system through spoken commands. ■



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## Corrections

■ A pie chart with the story "Microsoft to offer stand-alone Active Directory" (July 22, page 7) should have indicated it represented Windows 2000 users' adoption of a directory and not the market at large.



### THIS WEEK'S QUESTION:

Portal software vendor Plumtree's name is derived from subject matter in which book?

Answer this and nine additional questions online and you could win \$500! Visit **Network World Fusion** and enter **2349** in the Search box.

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# Infrastructure

■ TCP/IP, LAN/WAN SWITCHES  
 ■ ROUTERS ■ HUBS  
 ■ ACCESS DEVICES ■ CLIENTS  
 ■ SERVERS ■ OPERATING SYSTEMS  
 ■ VPNS ■ NETWORKED STORAGE

## Short Takes

■ **IBM** last week announced an addition to the low end of its Intel-based server line, along with a new cabling technology designed to help users who manage large numbers of rack-mounted servers. The **x345 server** will start shipping this week as either a one- or two-processor system running on 2-, 2.2- or 2.4-GHz Intel Xeon processors. The rack-mount system will fit six hot-swappable hard drive bays and five PCI slots into a 2U (3.5-inch) space. The new server, along with the rest of IBM's Intel line, will work with its new **Advanced Connectivity Technology** for reducing the number of cables cascading from the back of a rack chassis. ACT lets customers connect each server to its closest neighbor in the rack and then have the last server in the chassis plug into a management switch. With IBM's technology, up to 256 servers can be connected into the one switch. IBM's Remote Console Manager, which uses ACT and lets administrators log on remotely to all the connected servers, starts at \$1,300 and will be available this week. The x345 server starts at \$2,800 with one 2-GHz Xeon chip. The server supports Windows NT/2000, Novell's NetWare and Linux distributions from Red Hat, SuSE Linux AG and Caldera. [www.ibm.com](http://www.ibm.com)

■ **IBM** and **Palm** will develop software to let users of wireless-enabled Palm handheld devices remotely access IBM business applications. The companies also will jointly develop applications targeted at business users of the Palm handheld. A version of Sametime, the instant-messaging client for corporate users made by IBM's Lotus will be one of the first such applications. The first release of IBM and Palm's joint work is scheduled for September. The companies will jointly sell and market the software. IBM, as part of the agreement, will offer Palm PDAs. IBM has in the past sold Palm PDAs under its own WorkPad brand, but stopped doing that earlier this year. [www.palm.com](http://www.palm.com); [www.ibm.com](http://www.ibm.com)

## Call centers tackle IP telephony

Converged networks change the way customer contact shops operate.

■ BY PHIL HOCHMUTH

Converged voice/data WAN projects and applications are helping customer call centers of all sizes lower costs and become more efficient. Benefits include savings on long-distance and local phone charges, and improved performance of customer call agents because of better-integrated voice and data technology.

At Household Financial, convergence is helping the financial services company turn its 1,500 branch offices around the country into small, localized call centers that can serve customers over the phone or face to face.

The Prospects Heights, Ill., firm recently built a converged voice and data network with products from Vertical Networks and an IP-enabled nationwide T-1 backbone from AT&T. In each office, a Vertical Instant-Office 3500 was installed, which acts as a small-office PBX, a LAN switch and a platform for computer telephony applications.

Household branch offices provide loan application and other financial services to regional customers. The branches were once connected to a centralized database via dedicated 56K bit/sec data circuits, while each office had anywhere from five to 15 outside telephone lines for customer support.

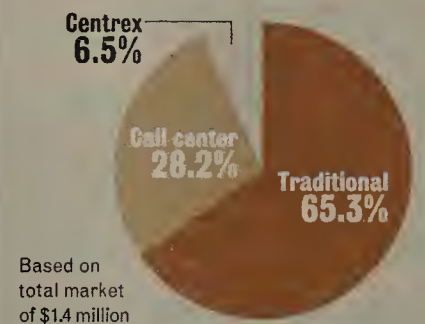
By combining the branch offices' voice and data onto single T-1 lines from AT&T, the total telecom savings among the branches is expected to be about \$4.5 million per year, says Ken Harvey, CIO for Household. In addition, with the new converged network, branches get nearly three times the WAN bandwidth as before.

But that's not the biggest plus, he says. "What the converged network has allowed us to do is to make every branch office its own call center," he says. Along with converged WAN traffic, the Instant-Office PBX/server is used as a platform for customer interaction applications normally found in larger call center systems.

### IP makes contact

IDC expects that many call centers will look to convergence technology by next year.

Worldwide converged PBX revenue by application in 2003



For example, the box integrates caller ID with Household's custom-built CRM system, letting customer records, such as loan processing updates, pop up on an agents'

See Call center, page 16

## Route-control gear gets smarter

New software features enable more sophisticated routing decisions.

■ BY TIM GREENE

With an eye toward helping customers reduce Internet connectivity costs, RouteScience Technologies and Proficient Networks are adding features to their route-control equipment that lets the equipment weigh the shifting costs of ISP connections to choose the best link.

These route-control server appliances sit on LANs at customer sites that have multiple Internet connections, and they determine which one is best — taking into account price, how close customers are to exceeding the usage they have contracted for and how well each link is performing.

RouteScience is introducing new features with Version 2.0 of its RouteScience Operating System (RSOS 2.0), including the ability to reduce the number of route changes by requiring a significant improvement in performance before making a change. If performance for the current link falls within an acceptable range set by the customer, RSOS 2.0 and the PathControl appliance won't switch to another ISP that

### Paying the price

Route-control equipment can be a major investment for businesses.

Product	Price
netVmg	\$150,000—\$250,000
Opnix	\$100,000
Proficient	\$35,000—\$50,000
Radware	\$39,000—\$79,000
RouteScience	\$30,000—\$250,000

might be faster. This helps prevent the volume of route changes from becoming a factor in degrading performance.

RSOS 2.0 monitors traffic over each link and switches it to other links before use exceeds the limit at which prices go up.

RouteScience also supports new reports, including a high-level analysis of traffic and costs, designed to help network executives explain the benefits of the devices to CEOs

and CTOs who don't directly manage the devices but want to see whether they are saving money. It also provides a report estimating the current bills from each ISP. RouteScience gear can send the bills automatically via e-mail.

Meanwhile, Proficient is adding price-based load-sharing support to its Policy Engine software. The support lets customers pick the fastest route for priority traffic but the lowest-cost route for the rest. Policy Engine keeps track of the pricing structure for each Internet link and weighs the current prices against each other. The benefit would be to get the performance required for certain applications while keeping costs down as much as possible.

This feature also will let customers make sure bills from service providers are accurate, says Zeus Kerravala, an analyst with The Yankee Group. "If you understand what you're paying your provider and you know how much traffic is going through their pipe, you should be able to tell them down to the penny what you should be paying

See Route control, page 16







\*Check with your service provider for availability. © 2004 Research In Motion Limited (RIM). All rights reserved. BlackBerry is a registered trademark and end-to-end wireless solution developed by RIM. BlackBerry, the BlackBerry logo, the "envelope in motion" symbol, RIM, the RIM Wireless logo and family of marks and the RIM logo are trademarks or registered trademarks of RIM. All other trademarks are the properties of their respective owners.



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**M**ost columns bring in responses from readers, but the last one (about Microsoft's Palladium initiative) brought forth quite a few. Surprisingly, many used the same phrase. Not surprisingly, the phrase was mostly misused.

One of the problems I foresaw with Palladium was that Microsoft was promising to publish the source code.

I said this was similar to providing burglars with a wiring diagram of your alarm system. Most of the readers commenting on the column accused me of promoting "security by obscurity."

## Security by obscurity?

Certainly source code is less obscure to read than compiled code, which was precisely my point.

The phrase "security by obscurity" was originated to describe the activity of software companies that chose to attempt to hide the knowledge of security holes in their products. Microsoft, among others, has been guilty of this. Typically this comes up when one group or another announces that a security hole has been found before the vendor can supply a patch. Of course, the vendor would prefer that the group not "go public" until the patch is released. The vendor believes that by obscuring the evidence of the hole, the security of the system is enhanced.

Unfortunately, the open source community and others have co-opted this phrase as somehow being evidence that source code should be made available. Somehow they think that poring over the code

will reveal a potential exploit before it can occur. While that's theoretically possible, it is just as likely that someone will read the code, discover a flaw and exploit it.

With open source software, it is easier to fix a flaw, as anyone can modify the code. Of course, that usually means multiple versions of the code. With so-called proprietary code you do have to wait for the vendor to fix it. So by publishing the source but not allowing others to modify it Microsoft is providing the worst of two worlds: letting the exploits be discovered quickly, but not letting you fix them. That's what makes publishing the source code a bad idea.

Precision is important, both in coding and in communicating. Remembering the precise use of a variable contributes to good coding. Remembering the precise use of a cliché or catch-phrase contributes to good communicating. Thus it is, and thus it always has been.

*Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at [wired@vquill.com](mailto:wired@vquill.com).*

### Tip of the Week

**T**he Web site [www.microsoft.com/windows.net](http://www.microsoft.com/windows.net) server/ is a treasure trove of information about the upcoming release of **Microsoft's .Net server**, the successor to Windows 2000. Start reading now so you'll be ready for the release later this year.

### Call center

continued from page 13

screen before he says "hello."

The InstantOffice server, integrated with Household's back-end systems, lets agents pull up customer documents over the WAN from a centralized database housed in Chicago. Documents also can be faxed from Household branches to customers through an application interface on the desktop.

The market for converged voice platform next year — which includes IP PBXs and IP-enabled PBXs, or phone systems connected via data lines — will reach \$231 million, up from just \$7 million four years ago, according to IDC. This comes as larger companies have ramped up customer service efforts among businesses. A recent IDC study found 28% more businesses created IT budgets specifically for call centers in 2001 vs. 2000.

The traditional, or circuit-switched, call center market is led by Nortel, Avaya, Siemens and Aspect, which sell automatic call distributors (ACD), or beefed-up PBXs that can handle the large call volume.

Companies including Alcatel, Cisco, 3Com and smaller players such as Vertical Networks and Altigen have added call center capabilities to their IP PBXs, while the traditional players have gotten into the act with IP-enabling add-on software for their ACDs and pure IP call center software that can run on top of server-based IP PBX products.

### Integrated apps create efficiency

Integrated IP/telephony applications also are making enterprise call centers more efficient at reaching customers.

If you get a call from Bass & Associates, an Atlanta law firm that provides outsourced bankruptcy and collection call services for credit card, cell phone and consumer loan companies, you probably don't care that the company uses an integrated voice/data system to streamline its calling process.

But the Conversations 4.0 predictive dialing software from Divine lets the firm's agents make 70% more calls daily, according to Jack Stephens, senior account executive with Bass, who oversaw the installation of the Conversations server. The Conversations server has let the Bass law firm double the money it collected for its clients each month, he adds.

The Conversations application runs on an IBM RS6000 server, which connects to the firm's IBM AS/400 and a Lucent G3 PBX. The Conversations server places the call for the agent, and a desktop application screen brings up the customer's data from the AS/400 for the agent to read.

Because Conversations runs over IP, Stephens has extended the server over the company's VPN to a second call center in Tucson, Ariz., that conducts collection calls during West Coast business hours.

"Running the [Conversations] application over the network let us add more agents in the Tucson office," Stephens says, which has helped ramp up collections on the West Coast.

### Some call centers still circuit switch

While IP telephony and voice over IP have been deployed in a few large call centers, the base telephony gear in the largest call centers will remain circuit-switched for the time being, some users say.

"The reality is that we've got a huge investment in PBXs that work," says Tom

McCormick, senior technical analyst with Carnival Cruises in Miami. "We are a call center for the most part; that's where all of our customer service is."

IP voice gear such as IP phones and PC-based softphones might promise improved features and more closely integrated voice/data applications, McCormick says, but he does not think the technology is ready for prime time on the scale of Carnival's contact centers.

"[IP PBXs] are not meant to be complementary or compatible with existing PBXs, generally," McCormick says. "From the ground up they're great, but we're not ready to risk that technology in our call center."

### Route control

continued from page 13

them each month," he says.

Bills for services that are based on a flat fee for a certain amount of bandwidth, but then charge a separate usage fee for traffic that bursts above that level are difficult to predict month to month, Kerravala says.

This feature could also be used to divert traffic away from heavily used links before it bursts into the higher price, Kerravala adds.

The company also sells its software in modules, so customers can buy software keys to unlock new capabilities as they need them. So, a customer could buy a key to unlock the ability to make decisions based on variable pricing vs. fixed pricing.

Proficient now can pair its devices so one stands ready to take over if the primary one fails.

Separately, Sockeye Networks, a route-control managed service provider, is teaming with InvisibleHand Networks to support automated bandwidth-trading services. The two companies will supply their respective software and services that let businesses bid on backbone IP bandwidth based on price and the performance of the network on which the traffic

Carnival runs two call centers based on Avaya G3 PBX systems — in Colorado Springs and Miramar, Fla., to cover both sides of the U.S. The Colorado and Florida centers have 250 and 700 agents working in them, respectively, and the cruise company is building a third call center in Miami that will house another 700 agents.

"For any other department that's not our breadwinner, [IP voice] is great," he says.

"Take my IT department, where it doesn't really matter how good the quality of a call is. We're not losing money there if a phone isn't working. There's no reason to buy a non-IP phones for non-reservation-related departments," McCormick says. ■

will travel.

Corporate customers that want to buy such bandwidth at auction would connect to a bandwidth marketplace service via an access connection. Using agent software, they would specify that they want, for example, 5M bit/sec of bandwidth for a month for less than \$2,000 with less than 60 msec of network delay. Sellers at the marketplace would advertise what bandwidth they have to sell.

Sockeye's Global Route service would determine which sellers' networks met the performance requirements and report back to the agent software. InvisibleHand's Merkato software would determine which met the price, and the agent would pick the best deal.

Corporate customers of such a service could buy bandwidth in time intervals as small as 5 minutes, so they would be buying just the bandwidth they need.

RouteScience: [www.routescience.com](http://www.routescience.com);  
Proficient: [www.proficientnetworks.com](http://www.proficientnetworks.com);  
Sockeye: [www.sockeye.com](http://www.sockeye.com)



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# Building the Optical Enterprise

*Cisco COMET provides an optical answer to enterprise requirements for voice, IP convergence, storage and more.*

**AS ENTERPRISE NETWORKS INCREASE** in importance to business operations, network architects must continually look for ways to meet new demands for bandwidth, resilience and performance. At the same time, enterprises are under pressure to contain costs even while they are being asked to improve service.

Explosive growth in e-commerce and Internet transactions is driving requirements for higher network bandwidths. For many, the most efficient way to meet this demand is to build a single high-performance network that can handle all their voice, data and video network requirements. Increasingly, customers will find this new network infrastructure is built on top of optical technology. Vendors such as Cisco Systems, with its Complete Optical Multi-service Edge and Transport (COMET) product portfolio, are delivering optical technology tailored to meet enterprise requirements.

Enterprise networks have grown to employ a mix of services. A typical network may have TDM private lines supporting voice with frame relay and ATM services handling data, at speeds ranging from T1/E1 to T3/E3 or even OC-3/STM-1 and above. On the LAN, Ethernet rules, with speeds consistently increasing from its original 10Mbps roots on copper wire, to 100M and gigabit speeds on both copper and fiber. Now 10Gbps Ethernet is even starting to emerge in both the LAN and metropolitan-area networks (MANs).

Today, most Ethernet LANs are used to transport IP traffic. Once used solely to carry data, with the dramatic increase in LAN speeds and accompanying improvements to the protocol itself, IP is now doing far more. Enterprises are finding they can build all-IP networks that support all of their voice, video and data network applications. Vendors like Cisco, with its Architecture for Voice, Video and Integrated Data (AVVID), are delivering network switches, routers and other components that make truly converged networks possible. AVVID guarantees not only the availability of large amounts of bandwidth, but the quality of service (QoS) characteristics required by delay-sensitive applications like voice and video.

Storage is another application that comes with stringent performance and bandwidth demands. Whether the enterprise chooses to deploy storage-area networks (SANs) or network-attached storage (NAS) devices, they need a reliable, high-speed network underneath. Business continuance applications that demand off-site storage require these networks be extended across the metro area, with bandwidth and reliability requirements that are nearly impossible to achieve with traditional wide-area transport services such as frame relay and private leased lines.

## Converging on COMET

A confluence of factors is now making it possible for enterprises to support bandwidth-intensive applications such as storage consolidation and disaster recovery. First is the ability to lease dark fiber-optic cable and optic wavelengths from service providers. Increasingly, enterprises are finding that fiber or wavelengths are available to a number of their buildings in any given metro area, having been laid years ago by carriers in anticipation of future requirements. New fiber is likewise being installed at a steady pace, in both the WAN and the MAN.

At the same time, carriers and enterprises alike now have the technology

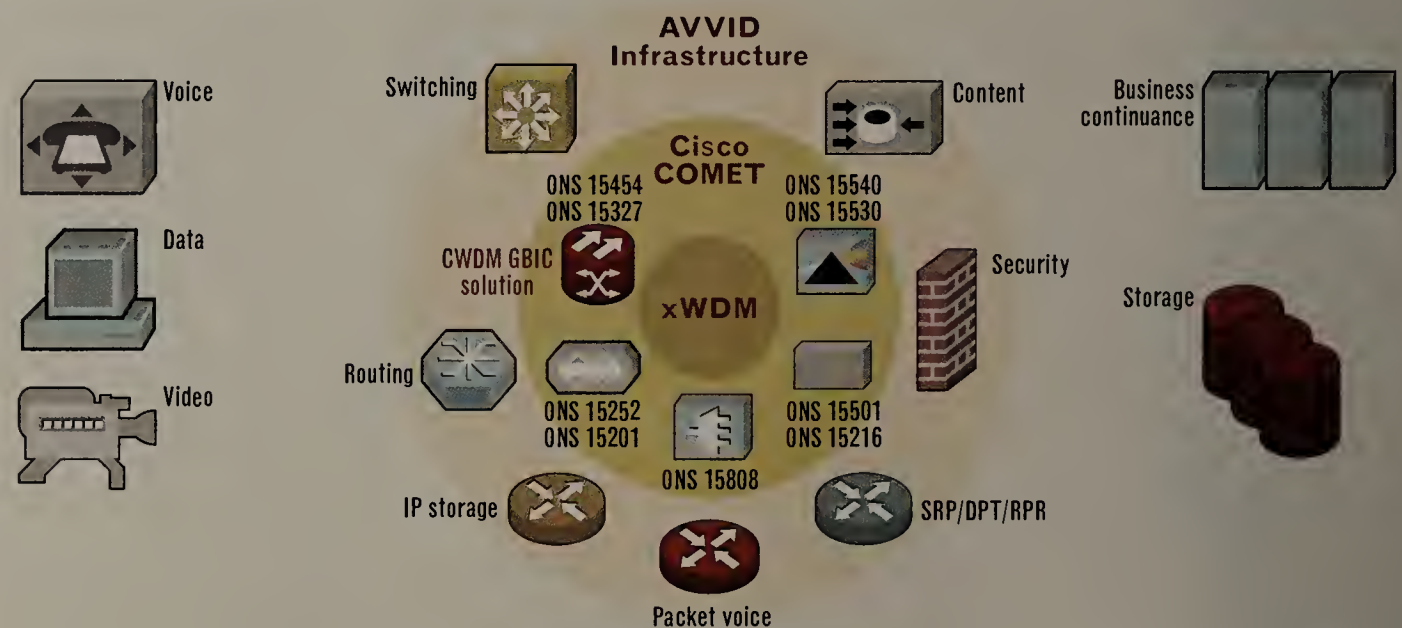
required to "light" that previously dark fiber and use it to support their myriad bandwidth and application requirements. Optical technologies like Wave Division Multiplexing (WDM) enable any service to be carried over wavelengths of light. WDM, integrated as part of a Multi-service Provisioning Platform (MSPP), can carry anything from Ethernet traffic to ATM, frame relay and private lines.

"Optical Fiber and DWDM technology enable enterprise customers to create a very high bandwidth optical infrastructure in the MAN today," says Carl Engineer, director of marketing at Cisco. "Multiple wavelengths can be used to aggregate all types of traffic, from lower-speed services on one wavelength of light and higher-bandwidth services such as ESCON, Fibre Channel and uncompressed digital video over other wavelengths."

Cisco gives enterprises the opportunity to take advantage of optical technology through its COMET product portfolio. COMET provides an array of optical networking equipment that enables enterprises to extend and manage across the MAN all the voice, data and video applications that Cisco AVVID technolo-

## Cisco COMET: The Optical Foundation for Cisco AVVID

The Cisco COMET portfolio, anchored by the ONS switch family, enables enterprises to support any mix of voice, video, data, storage and disaster recovery applications.



gy has long supported in campus networks.

COMET builds on the wealth of experience in routing and switching that is inherent in the Cisco IOS infrastructure and blends it with carrier-class optical technology. COMET provides for the provisioning of any enterprise network service or application over an optical network with no single point of failure. QoS capabilities are likewise supported end-to-end, as COMET equipment can interoperate fully with an enterprise's existing Cisco internetworking equipment and with carrier-provided services.

That's an important point, Engineer notes, because fiber deployment is an evolutionary process. "In any one city, the probability that you'll be able to tie 100% of your buildings together with fiber is fairly low, but there's a high probability that you'll be able to reach 40%," he says. That means enterprises will need a hybrid architecture for some time, one capable of mixing private optical services where fiber is available and carrier-provided services where it is not.

Over time, enterprises will be able to converge all of their voice, data, video and storage networks onto a single, highly resilient optical infrastructure, providing cost efficiencies in terms of operational expenses and recurring carrier charges while positioning the enterprise to meet future demands.

In short, the Cisco COMET portfolio enables enterprises to cost-effectively meet the demand for reliable, high-performance networks that support converged voice, data and video applications today while positioning them to meet whatever new requirements the future may bring.

## Learn more about optical networking:

Download the white paper, "Cisco COMET: Optical Networking Solutions for the Enterprise," from: [www.nwfusion.com/gocc/cometwp2](http://www.nwfusion.com/gocc/cometwp2).



# security:

7.29.02

## Defending the extended enterprise

### Inside

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- The promise of all-in-one security  
Page 12.

An editorial supplement to NetworkWorld



# Fortifying the

**Today's world of open network access means rethinking the role of the firewall.**

**By Bob Violino**

**Mirrored firewalls provide some comfort to Don Hoffman, who watches over The Mony Group's extended enterprise network as director of IT security.**

Obviously, the firewall can no longer stand alone against all nasty intrusions. The chances that a virus or other ill-intended probe will penetrate a company's firewall rises almost daily, especially when ports are opened to give people outside the physical perimeter access.

Not that most network executives can even define the perimeter any longer. The distinction between what's inside

and outside the corporate realm has vanished. In its stead has come modified perimeter architectures, built using more advanced firewalls that follow tenets of a security model for today's realities (see related story, page 6).

When network managers began deploying firewalls as security tools a decade ago, they could easily define the network perimeter. Most people who



# firewall

had access to corporate networks worked on desktop computers in the main office; external links to business partners were virtually nonexistent. A simple firewall-based demilitarized zone between the private and public network made sense. But today's practice of allowing access to corporate data to anyone who might need it — mobile workers, telecommuters, business partners, suppliers — from wherever they are over wired or wireless links turns that sensible decision into a foolish one.

To provide a high level of access, companies punch holes through the firewall barrier and hide data from the firewall's view by using technologies such as VPNs and encryption. This cripples firewalls — as they were originally designed — and keeps them from protecting companies against attacks, high-tech vandalism, theft of data or other security breaches.

## On the attack

Data from the Computer Security Institute (CSI) shows the number of security breaches, already high, has grown in the past year. CSI's 2002 Computer Crime and Security Survey, released in April, indicates that 90% of the 503 participating U.S. organizations detected computer security breaches

within the previous 12 months, up from 85% in the previous year. Eighty percent of the organizations said they suffered financial losses because of computer breaches, up from 64% the year before.

About 75% of survey respondents said their Internet connection was a frequent point of attack, compared with 33% who cited their internal systems as such. Forty percent detected system penetration from the outside, 85% detected computer viruses and 70% of those attacked reported vandalism.

"Companies need to provide a lot of access to their partners, customers and employees today, and they're using technologies like Web services and extranets more frequently. All of this points to the fact that perimeter security by itself is no longer adequate," says Laura Koetzle, security analyst with Forrester Research.

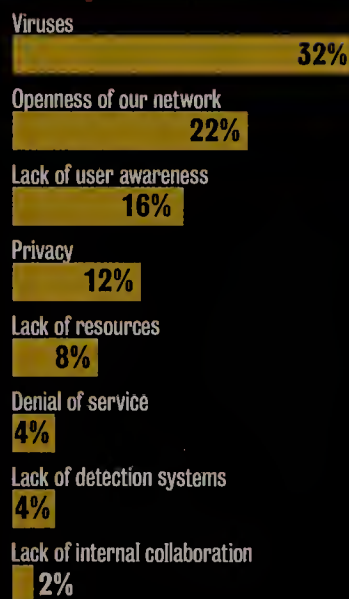
"Businesses need to have firewalls, but there must be various layers of firewalls as well as clear policies that determine how these firewalls interact," Koetzle says. "Having nothing protecting the middle of the enterprise is a sure way to let someone come in and do maximum damage."

In a survey of 50 IT managers conducted by Forrester earlier this year, "openness of our net-

## Too many holes

**The openness of corporate networks — i.e., firewall-based perimeters riddled with holes — is causing serious concern for IT managers.**

### What is your biggest IT security concern?



SOURCE: FORRESTER RESEARCH

work" was the second most common response given (after viruses) when managers were asked to name their biggest IT security concern.

## On the defense

Firewall vendors such as Check Point Software, CyberGuard, Network Associates, Secure Computing and Symantec are trying to address the needs of increasingly open networks by bolstering firewall

capabilities. For example, they are developing directory-based firewalls that issue access rights after a user has logged in and logical firewalls that separate groups within an organization. Other initiatives include:

- Designing firewalls to work more easily with intrusion-detection systems and antivirus software, or embedding those capabilities in firewalls.
- Offering firewall protection for equipment such as home office computers and wireless handheld devices.
- Providing firewalls that are embedded in components such as network cards, so individual devices on a network can be protected against internal and external threats.
- Offering filtering levels so firewalls can better determine the threat of specific messages or applications being sent.

Network executives taking advantage of new ways to design firewall-based perimeters are experiencing good results. The Mony Group, an insurance and financial services firm in New York, has installed mirrored firewalls to protect its perimeter. If one firewall fails, another stands in the way and ensures protection, says Don Hoffman, director of IT security.

"This makes us less vulnerable if we're attacked," Hoffman



says. "It used to be there was a single point of failure."

Still, Hoffman pressures firewall vendors to do a better job of getting fixes out when weaknesses in firewalls are exploited or when new threats emerge

Despite growing sophistication, firewalls aren't enough, Hoffman says. Mony also uses VPN, IDS, authentication and other technologies to secure its corporate network. Plus, Mony is exploring whether internal fire-

VPN to connect via the Internet with its parent company in Japan, offices in Europe, and to selectively provide data access to workers in the field.

"When a salesman working in a hotel room needs to get ac-

firewall. "The Swiss cheese effect comes into play where you're creating holes in the firewall," he says. "We can't just make random changes in the firewall to accommodate all the requests."

New policies really come down to common sense, says Tom Warfield, systems administrator in charge of networking at government contractor AST in Lawton, Okla.

"We have a simple rule, if you're not using something, shut it off," he says. It might sound obvious, but "people tend to leave everything — desktop computers, laptops or other systems — turned on," and that invites trouble that the firewall can't always block.

*Violino is a freelance writer covering business and technology. He can be reached at [bviolino@optonline.net](mailto:bviolino@optonline.net).*

**"The Swiss cheese effect** comes into play where you're creating holes in the firewall. We can't just make random changes in the firewall to accommodate all the requests."

— Mike McKenna, IS manager, OSG Tap & Die

such as logic bombs or spam. "That's an underlying issue with security. We know a vulnerability exists, but we have to wait for the patches or upgrades," he says, adding, however, that vendors are improving. "They used to be a week behind the problems and now they're two or three days behind."

walls would be useful in protecting particular departments and even individual devices.

Of course new firewall technology is only a partial solution. Policies must also be created. OSG Tap & Die, a tools manufacturer in Glendale Heights, Ill., uses Secure Computing's SideWinder firewall with a built-in

process, he can come in through the firewall using the client VPN and I [can verify] he's actually the salesman through authentication," says Mike McKenna, IS manager at OSG.

However, McKenna is cautious about granting employee requests to transfer data to and from Web sites blocked by the

## Firewalls and then some

**W**ith firewalls no longer able to be a solitary guardian against all potential threats, network executives "need to look at different ways to take the load off the firewall," says Don Hoffman, director of IT security at The Mony Group, an insurance and financial services firm in New York.

Hoffman says Mony is using technology such as IDSs at the front and back ends of its firewall to help control access to internal networks and data. He says most firewall vendors will soon begin building intrusion-detection capabilities into their products, if they're not already (see

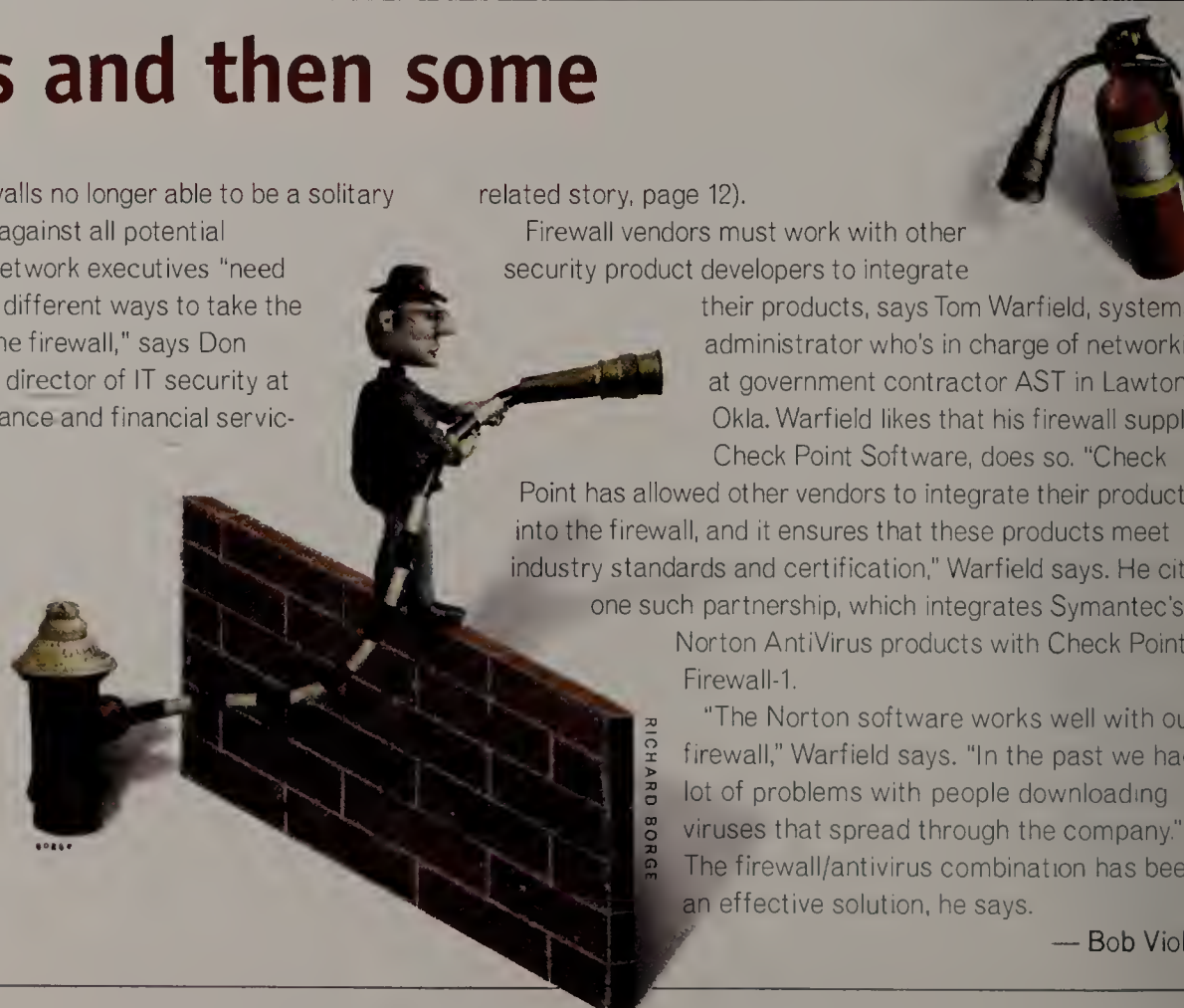
related story, page 12).

Firewall vendors must work with other security product developers to integrate

their products, says Tom Warfield, systems administrator who's in charge of networking at government contractor AST in Lawton, Okla. Warfield likes that his firewall supplier, Check Point Software, does so. "Check Point has allowed other vendors to integrate their products into the firewall, and it ensures that these products meet industry standards and certification," Warfield says. He cites one such partnership, which integrates Symantec's Norton AntiVirus products with Check Point's Firewall-1.

"The Norton software works well with our firewall," Warfield says. "In the past we had a lot of problems with people downloading viruses that spread through the company." The firewall/antivirus combination has been an effective solution, he says.

— Bob Violino







Only one in three network security breaches gets reported.\* **Maybe you'll get lucky.**

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SMARTER SECURITY

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# Time for a new security model

The classic goal-oriented model for security design is broken. Fixing it will require new attitudes toward security planning.

By Julie Bort



BORGE

RICHARD BORGE

Confidentiality, integrity, availability: The security industry declares these the goals of computer security. While this goal-oriented approach to defining security needs, known to security folk as the "CIA model," is good as far as it goes, it no longer goes far enough.

Forged in the early days of the Internet's commercialization,

the classic CIA approach took on authentication, access control and nonrepudiation as goals in the mid-1990s. Since then, this model has become standard security fare.

But the goal-oriented approach neglects today's critical security needs, where attacks are more sophisticated, frequent and from a wider range of

sources. For instance, the traditional architecture for implementing the CIA model — the firewall-based perimeter — is increasingly ineffective.

Worse still, the goal-oriented approach does nothing for the other half of good security planning: risk assessment. Risk assessment, which guides security managers in prioritizing security





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spending, is sorely neglected even in organizations that acknowledge its importance.

"We use CIA as a guideline, but the majority of what we do now is a 'disaster-recovery' model. What can we live without, and what is the impact of without? But our company unfortunately has not done a lot of risk assessment — only to say, if we lost it, what does it hurt?" says a senior

underlying design.

But chasing after goals with products is a flawed tactic on several counts. It can lead to times when the goal is achieved but security isn't. For instance, 128-bit key encryption will endow critical e-mails with confidentiality, and maybe integrity, but it won't stop a worm at the ISP from munching messages before recipients read them. So

Risk assessments often are neglected because network executives are typically technology specialists, not risk analysts. One model that simplifies the task is time-based security, says its developer Winn Schwartau, security consultant, author and *Network World's* "On Security" columnist.

Time-based security lets security managers "mathematically

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could easily breach security — just hammer through the window. But that triggers an alarm. How much a thief can steal in the time it takes the police to get there is the risk," Schwartau says. "Detection plus reaction equals risk. This is identical in the cyberworld." The trick is assessing the value of the stolen data, he adds.

When following this model, security executives determine which files could be accessed in a specified amount of time, such as the four days Schwartau says it typically takes to realize a breach.

Dividing file size by bandwidth will pinpoint the amount of time a hacker would need to grab that file and, therefore, which files are at risk. Myriad other formulas give security managers other measurements of risk, which they can turn over to risk-assessment specialists. Those specialists can determine the value of that data (a research and development database or customer billing information) and what it's worth to secure.

And that, users say, is the Holy Grail. "Executives recognize that things need to be done for computer security but don't have a real understanding of what the computer systems do. I need to present it to them in actuarial tables — the way they understand," the senior network security engineer says.

## No more Tootsie Pops

Network executives must also revise their traditional models of implementation, says Howard

**"Security is a hard sell** because if I'm doing my job right, nothing happens."

— Matt Raymond, manager of information security for Robert Half International

network security engineer for a global, Fortune 100 food corporation who asked not to be named.

Despite these shortcomings, the security industry and users overwhelmingly assume that CIA is the best way to achieve high security. Network executives can't afford to buy into that assumption. True, confidentiality and its five siblings forever will be security goals. Yet goals are only a portion of the plan. Other portions should be risk assessment and a modified version of the "tried and true" demilitarized zone (DMZ) perimeter. Critical, too, is the need to recognize new goals as they emerge.

## Time will tell

CIA thinking has turned security planning into a product game. Security equals the installation of point products that perform goal-oriented tasks. You install encryption for your confidentiality, tokens for your authentication, firewalls for your access control, and so on. If a failure occurs, the theory goes, execution is to blame (a missed patch or faulty setup), not the

while the security goals for messages were met, the business goal of ensuring safe delivery of critical information was not.

Basing security on achieving goals sets you up for failure because it requires always-perfect product implementations (not a real-world expectation), or at least one back-up system for every product (not fiscally feasible or responsible).

Far wiser is basing your security architecture on an acceptable percentage of time goals should be met, which is what risk assessment tells you. If you know how much money a specific breach will cost the company, you can determine the acceptable percentage of time a security goal can be missed and how much to spend on defense.

This risk assessment will let you conquer what users say is security's biggest hurdle: obtaining adequate budgets.

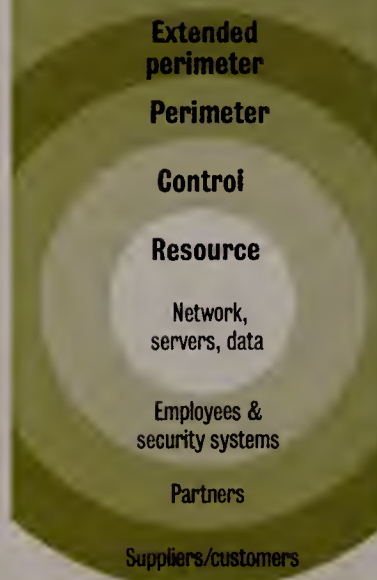
"Security is a hard sell because if I'm doing my job right, nothing happens," says Matt Raymond, manager of information security for employment agency Robert Half International, in Pleasanton, Calif.

quantify" security risk, Schwartau says. It assumes the worst-case scenario — no security — and calculates how much damage could be done in the time it takes a company to detect a hack and react to stop it.

"With a jewelry store, a thief

## Security in layers

Burton Group's "Virtual Extended Network" model is an alternative to traditional demilitarized zones. Its four layers represent security techniques for different zones of use.





# An IDS Balancing Act

Top Layer's IDS Balancer enables 100% coverage against network intrusions.

**NETWORK-BASED INTRUSION DETECTION SYSTEMS** (IDSs) play a critical role in network security by alerting enterprises when intruders are knocking at the door. But as traffic flow increases and hacker methods become more damaging, many IDS implementations cannot keep pace, creating performance issues that compromise security.

Load balancers can help remedy the problem by dividing the workload among a number of IDS sensors. But IDS load balancers must be able to balance traffic based on entire streams of data, each equivalent to a "conversation," as opposed to dealing with individual packets. Top Layer Networks' IDS Balancer is one such product that does just that, while at the same time enabling customers to save money by funneling traffic from multiple links to a single IDS sensor.

## IDS limitations

Depending on the mix of policies in place, the type of traffic and number of signatures or anomalies the network IDS must monitor, a typical 100M bps IDS will be able to deliver on only 60% to 80% of its rated capacity. Even worse, a Gigabit IDS will keep up with no more than 40% to 60%, or 400M to 600M bps of traffic.

Switched networks compound the problem. To monitor all data in a switched network, traffic must be copied to a single Switched Port Analyzer (SPAN) or "mirror" port. This port will thus be operating at or near 100% utilization, and often will drop packets entirely when it can't keep up. So the same IDS that could monitor only 40% to 80% of traffic on a segment that was not fully loaded must now deal with one that is at full capacity. The result is missed intrusions.

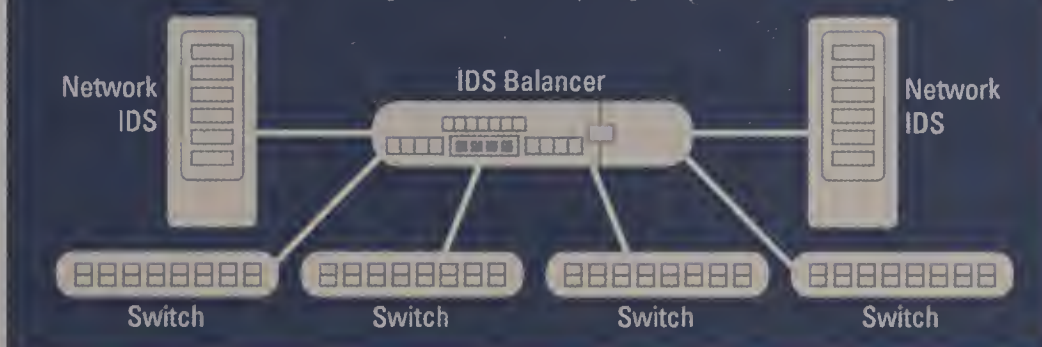
Another issue is networks that employ asymmetric routing, often used when a company has dual Internet connections. In this case, packets that belong to the

understand session and flow information, allowing it to balance on a session-by-session basis. The IDS Balancer can pull data from multiple network segments and re-aggregate the session before presenting it to the IDS, enabling the IDS to see the entire conversation and properly analyze a potential attack.

The IDS Balancer also helps IDSs keep pace with fully loaded network segments by balancing the load across multiple sensors, such as a single Gigabit stream bal-

## 100% Coverage with IDS Balancer

Multiple 100M bps network switches can feed into Top Layer's IDS Balancer, which aggregates the traffic and sends it to a smaller number of IDS sensors. This setup improves coverage by allowing the IDS to monitor traffic on all segments without requiring a separate sensor for each segment.



same data stream may take different paths to their destination, making it impossible for the same IDS to see all the packets in the stream.

## Balancing the IDS load

The resolution to these issues lies in finding an intelligent way to split traffic from multiple segments across multiple IDS sensors, ensuring 100% coverage, scalability, and fault tolerance.

Top Layer's patented Flow Mirroring technology enables the IDS Balancer to

anced across multiple 100M bps sensors.

Alternatively, the device can aggregate data from multiple low-speed links and present it to a single IDS sensor. This can reduce costs for the enterprise by limiting the number of sensors it needs to deploy to attain 100% coverage.

"It's prohibitively expensive to put a sensor on every viable segment of the network," says Mike Paquette, Vice President of Marketing for Top Layer. "The IDS Balancer enables customers to aggregate and balance flows to achieve the objective of 100% coverage."

**Learn more about effective network security by downloading the white paper:**

**"Vulnerabilities of Network Intrusion Detection Systems: Realizing and Overcoming the Risks," from [www.toplayer.com](http://www.toplayer.com).**



Schmidt, vice chairman of the Critical Infrastructure Protection Board, an advisory board to the federal government on national IT security defenses. This means overhauling the traditional DMZ design.

"I call it the Tootsie Pop syndrome — hard outer shell/soft chewy center. The traditional way we look at network security is to create the firewalls and environment to keep people out. But once someone is inside, he can pretty much do what he wants," Schmidt says.

Rather, network executives should concentrate on securing all pieces of the network puzzle — clients, wires, servers and applications, Schmidt says.

But securing every PC and node individually can create a support nightmare, users say, particularly in companies with thousands of them, in hundreds of offices across half a dozen countries.

The new Virtual Enterprise Network (VEN) security model, created by research firm Burton Group, offers a com-

promise.

"The hard-shell/soft-chewy center model no longer works in an era of virtual enterprises," contends Daniel Blum, Burton's senior vice president and research director and *Network World* "Intranet Advisor" columnist. "VEN is a layered defense."

Specifically, the VEN model

physically located outside the perimeter.

The upshot is a model that builds on the existing infrastructure, but plans for a distributed perimeter, Blum says.

## Missing the goal

While goals might not be an appropriate basis for your entire

is not a stand-alone event, Schwartau says.

"That [building-access card] database should talk to the other databases and say, 'Hey, how come Bill is logged into his machine if he wasn't in the building?'" he says.

As for people, Schwartau and Schmidt make two points. The

"Traditional . . . network security is to create the firewalls and environment to **keep people out**. But once someone is inside, they can pretty much do what they want."

— Howard Schmidt, vice chairman of the Critical Infrastructure Protection Board

defines four logical layers: the resource layer, which houses clients, servers, applications and data; the perimeter layer, which defines an organization's physical boundaries and contains firewalls, proxies and gateways; the control layer, where authentication services reside as do controls for security policies across layers; and the extended perimeter, where companies engage technologies or services to secure resources

security model, they remain an important part of security planning. But you shouldn't be able to count off the whole list on one hand. One addition should be the protection of a company's reputation, Schmidt says.

Users agree. "If you have a Web site and all of a sudden someone's selling all of your [customer] names off your site, or they end up putting their name on your Web site, your reputation will be damaged," Robert Half's Raymond says.

Likewise, brand protection also needs to be a security goal, say Schmidt and other experts.

Taken together, a top-notch risk assessment, revised DMZ implementation and expanded goals make for complete computer security today. Yet this plan is only one leg of the three-legged cybersecurity table. The other two are physical security and trustworthy people, Schwartau says.

A company's maintenance or building security staff traditionally has handled building access and other physical security systems, without input from security professionals in IT. That needs to change so that the swipe of a building-access card

first is that all the technology in the world won't help if your people don't follow your processes for auditing, patch maintenance and other ongoing support. The second is that you should verify the trustworthiness of anyone to whom you will be giving significant network access by running background checks. This is particularly important when hiring IT contract workers in countries known to harbor terrorists, Schwartau says.

Strong IT security can only be accomplished if all of the table legs are equally sturdy. ■

## The three legs of security

In this age of terrorism and sophisticated cyber threats, business security rests upon a three-legged defense.



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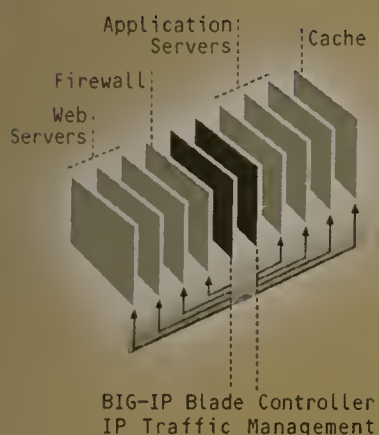


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# The promise of all-in-one security

**The lure of simplicity is prompting users to consider bundled security products. By Jennifer Jones**

At least three times per week, Arkansas State University's network is threatened by a virus, denial-of-service attack or system hack, often by students trying to tap the school's resources from their dorm rooms.

"The reality is my network is my own worst enemy," says Greg

Williamson, associate IT director at the Jonesboro school.

The university relies on multi-tasking devices to stave off such attacks. Arkansas State uses four Cisco Catalyst 6513 Gigabit Ethernet switches outfitted with intrusion-detection system (IDS) modules. IDS belongs

squarely in the network's core, Williamson says.

"If the core goes down, so does the network. With voice over IP running on the network to serve resident housing, there is a high-level, critical need for 911 services. The network can't go down," he says.

The IDS blades watch traffic as it crosses the switch backplanes, defending against denial-of-service and other attacks, Williamson says. They simultaneously monitor multiple virtual LANs. If a blade detects malicious or unauthorized activity, it triggers an alarm.

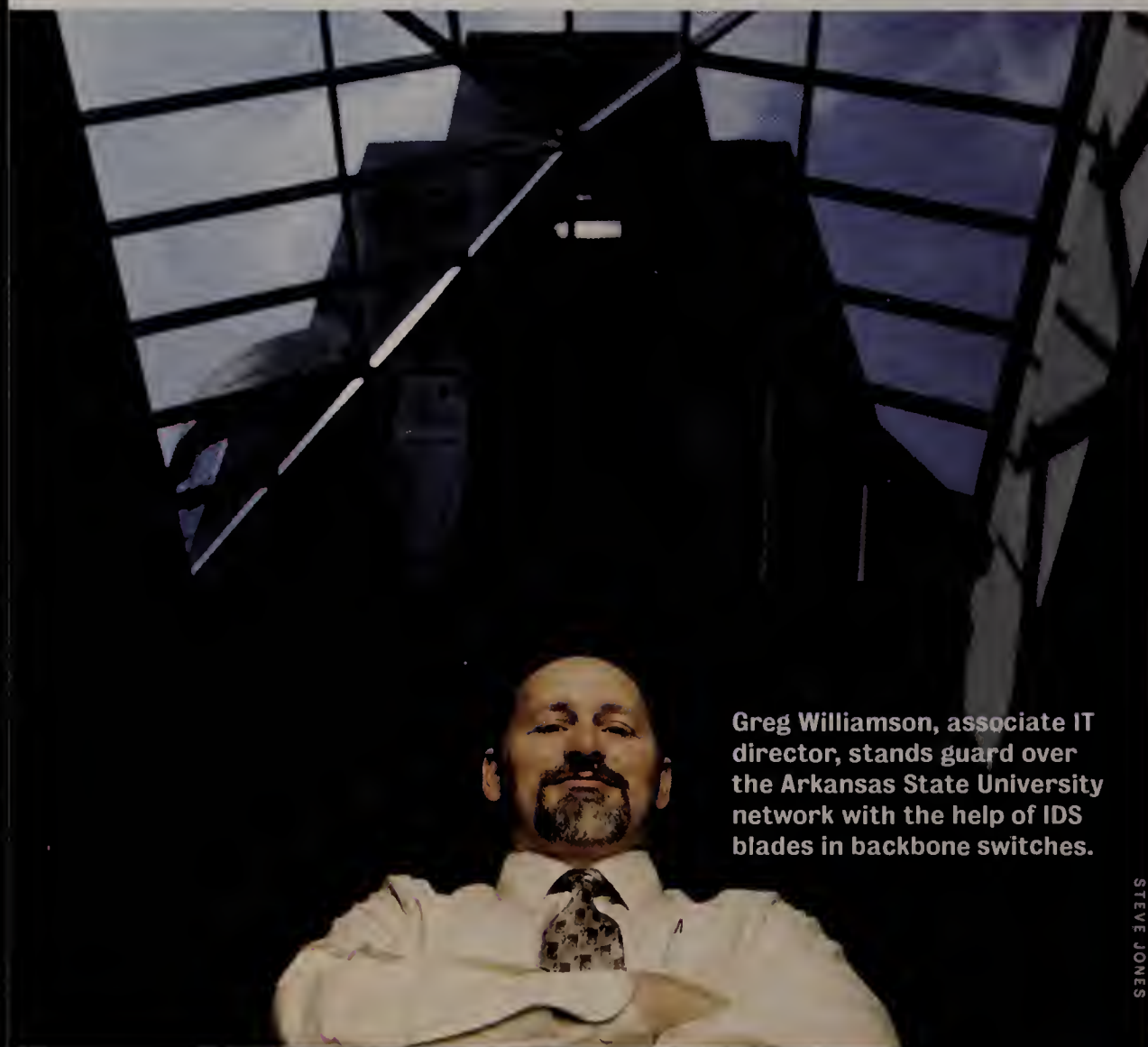
Injecting security functions into network gear like routers and switches is one method of integrated security attracting the attention of enterprise network managers. Another is tools that blend two or more security functions, such as IDS, Internet filtering, firewall, vulnerability assessment, and virus scanning. Vendors also are embedding security features into nonsecurity software products, such as virus scanning into e-mail.

## The lure of simplification

In a traditional network security setup, each device — firewall, IDS and vulnerability assessment tool — has its own console. Bundled products promise to integrate these, an appealing prospect to users.

"The benefits of using integrated solutions to us would be the use of a single management console to manage different security layers," says Aidan Garcia, network services manager at Eastern Bank in Boston.

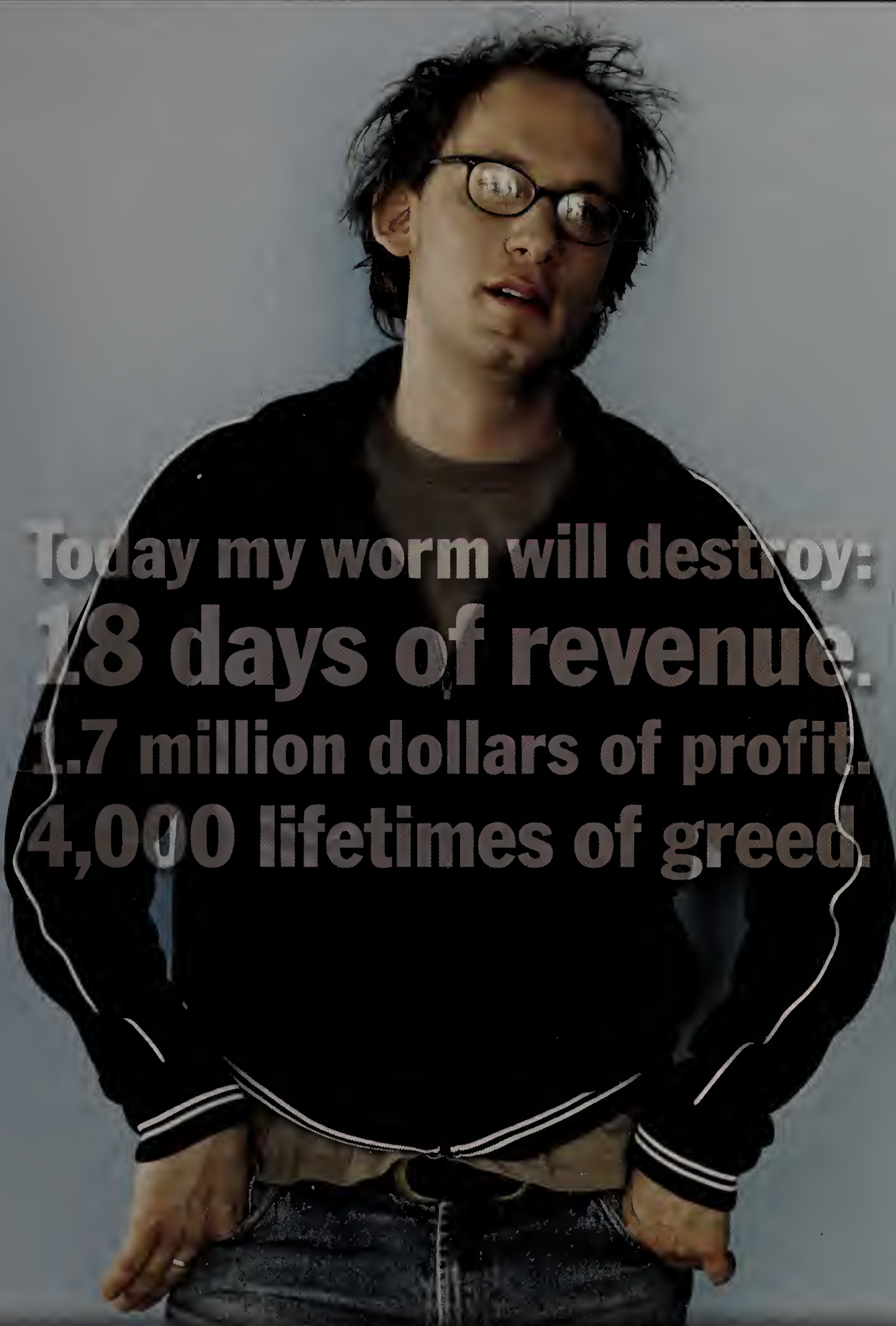
Mike Cothren, MIS director at the Pulaski County Special School District in Little Rock, Ark., says simplification was a



**Greg Williamson, associate IT director, stands guard over the Arkansas State University network with the help of IDS blades in backbone switches.**

STEVE JONES





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reason his organization chose appliance vendor SonicWall, which supplies the district with the SonicWall Global Management System. Along with firewall capabilities, this appliance performs Internet filtering by checking each request sent from Pulaski's LAN against a list of unacceptable URLs and IP addresses. It denies requests deemed inappropriate.

"Trying to make products from different vendors work together can be a nightmare. If there is a problem, each vendor will point its finger at the other. This allows you to work with one tech support shop that will handle all the issues," Cothren says.

Integrated products also could eliminate duplicate security functions and lower false-positive alarms — incidents in which systems report problems that have not occurred.

"One of the things integrated vendors claim is that their products will have people spending less time on worthless administrative things and more time on critical threats," says Chris Christensen, an analyst with IDC.

To that end, vendors have unleashed a wide variety of integrated security products.

TippingPoint Technologies, for instance, hawks a combined firewall/IDS device the company says can outperform software-based offerings and costs less because it is part of the network infrastructure.

NetScreen Technologies says it soon will support IDS and virus scanning on high-speed devices already hosting firewall and VPN software. NetScreen's offering "certainly would be an

attractive thing," says Chuck Horvat, director of network services at Divine, a service provider in Chicago using integrated NetScreen appliances at all 27 of its corporate infrastructure sites.

Along those lines, Nokia and Internet Security Systems (ISS) allied last year on RealSecure for Nokia, an IDS appliance the vendors say will build on Nokia's firewall capabilities.

Other alliances include a Network Associates and ISS agreement that pairs McAfee antivirus technology with ISS' RealSecure IDS products.

SonicWall user Pulaski County will benefit from a similar partnering because the organization is poised to implement McAfee antivirus capabilities on the SonicWall platform.

"The solutions we looked at generally would require a Windows 2000 server to manage virus updates to the workstations," Cothren says.

Because the school district is a Novell shop, adding the Microsoft servers would have added cost and complexity that Cothren preferred to avoid, he says.

Meanwhile, Inktomi announced in April that it had combined virus scanning, content filtering, user authentication and access controls into its caching software, Traffic Edge Security Edition.

In contrast to product bundling, Crossbeam bills Version 2.0 of its X40S appliance as a common platform for running applications from leading security vendors, such as Enterasys Networks' Dragon Sensor IDS and Check Point Software's firewall and VPN software. The company suggests the device can stand in place of servers, load balancers and switches.

E-mail vendors are also nailing down security alliances. Rockliffe teamed with F-Secure to

inject virus scanning into Version 5 of its MailSite SE software.

Watch for laptop and mobile devices to join the crowd, too, by adding authentication like tokens or biometrics.

## A hybrid approach

But for all the promise and vendor activity, integrated products have a spate of potential drawbacks. For instance, IDS, a

protection suite and e-business server.

A hybrid approach, using both dedicated and integrated products, makes sense even to Arkansas State's Williamson, an avowed believer in integrated security tools. "It has to be blended at this point," he says, characterizing the university's planned security architecture. "But while the integrated pieces

## All-in-one packages

Here is a sampling of wares that combine security functions traditionally provided in separate devices.

Vendor	Product
Cisco	Catalyst 6000 switch family with intrusion-detection system module
Crossbeam Systems	X40S Open Security Appliance
Inktomi	Traffic Edge Security Edition
NetScreen Technologies	NetScreen series appliances
Nokia	Nokia IP Security platforms
SonicWall	SonicWall Internet security appliances
TippingPoint Technologies	UnityOne Network-Defense Systems

commonly bundled technology, is difficult to engineer. (Visit [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1431, for related story.) And users like Eastern Bank's Garcia who yearn for easier management worry that a bundled product creates vulnerability.

"The shortcoming that has prevented us from investigating integrated solutions has been the single point of monitoring. If hackers could find a way around the system, they would have open access to the network beyond it," he says.

For such reasons, analysts question how widely enterprise users will accept bundled security wares. Eastern Bank has decided to forgo them for now. It stitches together dedicated products from vendors like Network Associates, Garcia says. Eastern Bank uses McAfee virus

seem to work better for us in many situations, I am still buying separate appliances as well."

The university employs several stand-alone IDS appliances to monitor traffic passing through switches and uses firewalls at the network perimeter and in a server farm, he says.

"I can't look at a single security appliance or integrated appliance and rest knowing that it will protect me," says Williamson, who says that the university's ongoing VoIP upgrade makes security even more vital.

"We are putting in 100M-bit/sec connections to potentially hundreds of hackers sitting in their dorm rooms," he says. "I'm not going to put all my eggs in one basket."

Jones is a freelance writer in Vienna, Va. She can be reached at [jjwriterva@aol.com](mailto:jjwriterva@aol.com).

## More online!

- Hope for IDS. **DocFinder: 1428**
- Users mistrust bundled security. **DocFinder: 1429**

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If your enterprise has a connection to the Internet, sooner or later you can expect some form of attack – be it a denial of service, virus or outright system penetration attack. But it's not just the threat from outside that you need to worry about. In the 2002 Computer Security Institute/FBI Computer Crime and Security Survey, 42% of respondents reported at least one security incident perpetrated by a company insider.

Protecting a network against internal and external threats requires a number of end-to-end security technologies, including tools that provide for authentication, privacy, authorization, integrity and non-repudiation. It's also important that these security tools work in concert with one another, which is no mean feat given the number of different vendors that each sell a piece of the puzzle.

Nortel Networks' broad range of security products meet the most stringent requirements of both enterprises and service providers, with headroom to scale as the

demand for greater throughput and network services increases.

Consider this lineup of Nortel Networks products that play a role in enterprise and service provider security:

- The Contivity IP Services Gateway supports enterprise IP Security (IPSec) virtual private networks, public key infrastructure (PKI) technology for trusted extranets, and includes embedded firewalls.

- The Shasta 5000 Broadband Service Node (BSN) enables service providers to offer VPNs and a suite of security capabilities including firewalls, encryption, network address translation (NAT), and denial of service protection for enterprises looking to outsource these services.

- The Alteon portfolio of switching and security products, which includes the Alteon SSL accelerator, multi-gigabit Alteon Switched Firewall, and content-aware Web switches that provide load balancing to improve the performance and scalability of firewalls, VPNs and intrusion detection systems (IDS).

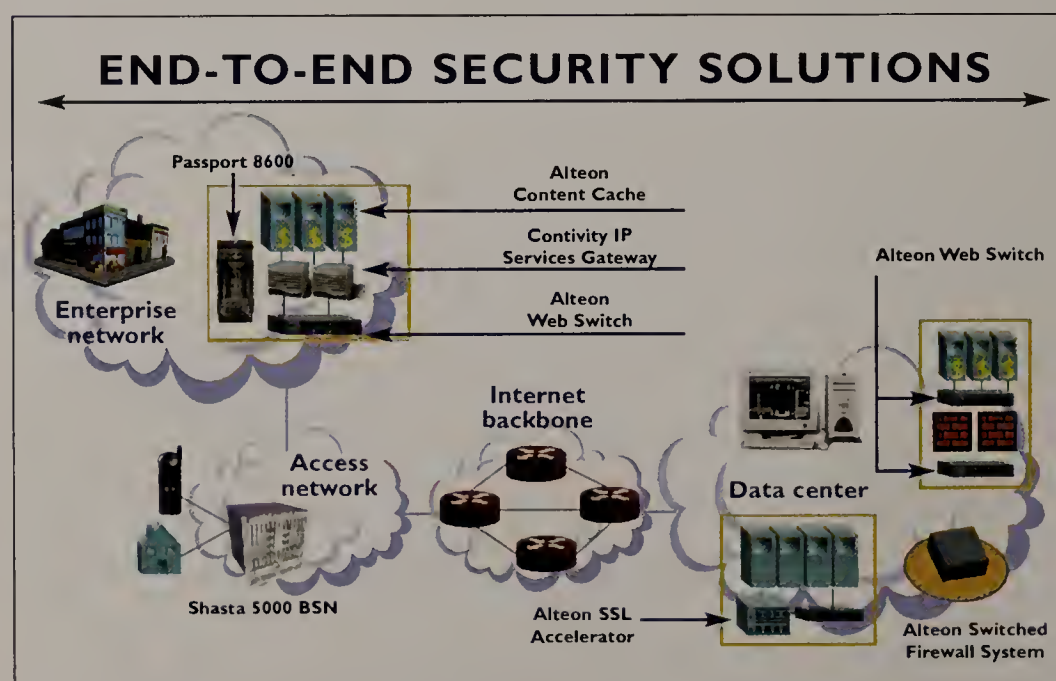
- Passport 8600 with the Alteon Web

Switch module provides virtual LANs (VLAN) for logical separation of enterprise network segments.

Nortel Networks also addresses third party security tools as well as availability issues with the Alteon Security Cluster, a high-speed, scalable platform on which to run security applications from Nortel Networks and its partners. Besides providing integration and centralized control of security applications, the cluster provides capabilities including Single System Image, which makes it possible to more simply and efficiently upgrade security software and policies. When a new firewall is added, for example, it is immediately updated with the configuration and rules of existing nodes in the cluster, significantly reducing configuration and testing time.

Nortel Networks further demonstrates leadership in the security field with the Secure Routing Technology (SRT) supported on its Contivity platform. SRT addresses a vexing problem with the IPSec protocol, which is used to forge secure, encrypted VPN tunnels through the Internet. IPSec does not provide for the exchange of dynamic routing information, which means tunnels remain chiefly static in nature. That means enterprises and services providers must perform manual configurations, increasing total cost of ownership. SRT solves the problem by defining a virtual IP interface that is mapped to each IPSec tunnel, enabling tunnels to appear as simply another available network path to the routing protocols RIP and OSPF.

Security holes are a threat to the availability and viability of any enterprise network and the data it carries. Nortel Networks meets the threat head-on with a lineup of high-performance security applications and resilient, scalable hardware that enables enterprises and service providers alike to protect networks end-to-end from all cyber threats, be they internal or external.



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# Enterprise Applications

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## IBM adds automated features to DB2

BY JAMES NICCOLAI

IBM last week unwrapped what it says is a major upgrade to its DB2 database, adding automated features designed to help customers reduce operational costs.

DB2 Version 8 also adds better support for Web services, which are technologies that link business applications over the Internet, and improved the database's ability to pull together data stored in a variety of sources.

IBM unveiled the new features as it put a beta version of DB2 Version 8 on its Web site. Details of pricing and availability will be released in the fourth quarter, when the beta test is completed and a date has been set for the final release, says Brant Davison, IBM's program director for data management strategy.

The new automatic features, dubbed "autonomic" by IBM, are Health Center and Configuration Manager. "We use the system to manage itself," Davison says. In both cases, IBM created algorithms that are set in motion after a database administrator enters information about the database environment.

Health Center includes a user interface, which is linked to monitoring programs

that keep tabs on various parts of the database, such as memory usage. These indicators, taken together, give an overview of the "health" of the database. The database administrator sets thresholds and when Health Center finds that memory use, for example, has reached a certain point, it fires off an alert.

If a database system runs short of memory or if a query is taking too much time to run, alerts are sent via e-mail, pager or PDA, and database administrators can make the required adjustments to their database through a Web browser, IBM says.

In Configuration Manager, the database administrator answers questions about a specific database deployment, such as number of users, or whether the workload is transactions or queries. The Configuration Manager program then automatically changes more than 50 database settings to match. The idea is to reduce the time it takes to configure a database and cut

back on the need for frequent manual tuning. Administrators typically need to configure as many as 100 parameters for their database, according to IBM; DB2 automatically sets some of those parameters based on responses to questions about how the database will be used.

Version 8 extends DB2's ability to work with different kinds of data that might be stored outside DB2.

"In Version 8, one of the data sources can now be a Web service — anything accessible via [Simple Object Access Protocol], XML and [Universal, Description, Discovery and Integration]," Davison says. DB2 makes SOAP requests to multiple Web services, aggregates the results and hands them back to the requesting application. Last year, IBM introduced a feature that lets DB2 publish its data via Web services protocols.

IBM hopes the upgrade will help it to steal further business from rival Oracle, which last year narrowly held its lead in the \$7 billion market for relational database management software, according to Gartner. Oracle took 39.8% of new license revenue from that market in 2001, down from 42.5% the previous year, while IBM increased its share from 32.6% to 34.1% over the same period, Gartner reports.

Oracle released an upgrade to its own database, Oracle 9i, last month. Release 2 of the product added better support for XML documents and a list of tweaks designed to improve performance and reliability.

Other new features aim to boost query response times and make it easier to manage and retrieve data stored in the XML format, IBM says.

*Niccolai is a correspondent with IDG News Service's San Francisco bureau. Network World's John Cox contributed to this story.*

### Short Takes

■ **Software and services company Divine** is unleashing the search and categorization capabilities it got when it acquired Northern Light earlier this year. Divine last week announced **Divine SinglePoint Search**, which had been available only as a hosted service. The SinglePoint search engine lets users query across multiple document formats, internally and externally, and includes an extensive taxonomy that automatically categorizes resources. SinglePoint offers customers a 17,000-term taxonomy that Northern Light assembled over several years. Divine SinglePoint Search runs on Solaris. Pricing for a typical implementation starts at about \$100,000, the company says. [www.divine.com](http://www.divine.com)

■ **BEA Systems** last week announced support for a new Java specification that should allow for greater interoperability among Web services applications, regardless of which vendor's software is used to build and deploy them. BEA said it added support for a certified implementation of the Java API for XML-based Remote Procedure Call in its WebLogic application server. JAX-RPC defines a set of standard Java APIs that let customers create XML-based Web services using Simple Object Access Protocol as the messaging protocol. The Java Community Process, the multivendor group that signs off on new Java standards, approved it in June. JAX-RPC should let Web services interoperate regardless of the programming language in which they are written or the platform on which they are deployed. Sun has posted an information page about JAX-RPC (see [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1543).

## Ford recalls e-comm unit

Exec resigns as auto giant disbands its e-business unit.

BY ANN BEDNARZ

DEARBORN, MICH. — Brick-and-mortar retailers Wal-Mart and Kmart last year made plans to reintegrate their spun-off Web businesses, deciding it doesn't pay to completely separate e-commerce operations from the rest of the business. Now automaker Ford has come to the same conclusion.

Ford Motor Co. is disbanding its ConsumerConnect e-business unit and saying goodbye to Karen Francis, CEO at the division. Considered a rising star when she was hired last year, Francis is leaving Ford effective Aug. 1 after 15 months with the automaker. Other Ford departments will absorb her duties and the group's 350 employees, the company says.

Industry watchers have expected Ford to make this move for months, says Kevin Prouty, research director for automotive strategies at AMR Research. "Ford has a very big back-to-basics strategy right now," Prouty says. "ConsumerConnect by itself didn't really fit into that."

ConsumerConnect initially was developed as a stand-alone division to develop e-commerce ideas, much like General

Motor's e-GM division. In the past, Ford and GM formed incubation areas "that allowed people to go out and think differently, and try doing things differently, and spend money in a different way," Prouty says.

There were definite successes and definite failures with this approach, Prouty says. "The biggest failure wasn't any one investment, it was more that some of these companies weren't really ready to change as fast as these incubation areas thought they should," he says.

Ford's decision to redistribute its e-commerce initiatives internally echoes similar juggling during the last few months at GM, Prouty says. It's not necessarily a sign that the automakers are cutting back on e-commerce, but a realization that e-commerce shouldn't be separated from the rest of the business, he says. "What Ford and GM both realized is that it really does need to be run from inside the traditional business segments," Prouty says.

Ford spokesman Paul Wood says the ConsumerConnect restructuring is not a money-saving move but a natural evolution.

"The e-commerce strategy has evolved to a point where a lot of the ideas have

See Ford, page 20



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'NET  
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Bradner

**T**he *New York Times* reported in mid-July that some of the big guys are now thinking seriously about hot spotting the wireless landscape. If their plans come to fruition, we could be well along to the future I wrote about last year ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1533).

It's hard to imagine a much higher-powered group of companies than the one the *Times* reported as having been involved in "Project Rainbow" over the past eight months. Intel, IBM, AT&T Wireless, Verizon and Cingular Communications, along with other companies not named, have

## The bits at the end of the Rainbow

been working in secret to put together a plan to provide 802.11-based wireless "hot spot" service in public spaces such as airports. Users would be able to use these 802.11 sites and low-speed cellular for Internet access under a unified billing plan.

Intel apparently is urging on the effort as part of its plan to push 802.11 quite aggressively. It said a while ago that its plan is to have 20 million portable computers 802.11-enabled in 2003, expanding to a total of 60 million portable and desktop computers by the end of 2004. Things are rosy in the 802.11 world; the *Times* reports that 7 million 802.11 cards were sold last year.

Even without the help of Project Rainbow, 802.11 is popping up all over the place. I'm writing this column sitting in a hotel room on an island at the southern tip of Korea, with free in-room Ethernet-

based Internet connections, exchanging e-mail with a colleague sitting a few hundred miles north in Seoul in a bar with free 802.11-based Internet service. We just finished a week of intense activity at the Internet Engineering Task Force meeting in Yokohama, where there were more than 1,400 people using the 802.11 network. There also was experimental 802.11-based Internet service in the first-class car of the train running from the Tokyo airport to Yokohama.

One of the more interesting parts of this story is the involvement of three large cellular telephone companies. It was not too long ago that some of these same companies were getting ready to spend billions of dollars to acquire licenses for radio spectrum to support the rollout of 2.5G and 3G cellular technology to provide high-speed data services to cell phones. It might be that these wireless companies

think they can have their cake and eat it too by supporting cellular and 802.11 technologies, but I suspect that the result will come down mostly in favor of 802.11.

It might be the case that 802.11 is not the "best" way to provide wireless Internet service; 3G cellular might give better coverage and better control of quality of service but, as Bob Braden, a long-term Internet geek, said, the lesson of the Internet is that efficiency is not the primary consideration. Ability to grow and adapt to changing requirements is the primary consideration. 802.11 has shown itself ready to do this.

Disclaimer: Harvard knows how to grow, and occasionally adapt, but has expressed no opinion on this topic.

*Bradner is a consultant with Harvard University's University Information System. He can be reached at [sob@sobco.com](mailto:sob@sobco.com).*

## Symantec blends multiprotection desktop software

■ BY ELLEN MESSMER

CUPERTINO, CALIF. — Symantec this week will announce desktop software that combines antivirus, intrusion-detection and firewall protection all manageable via a single Symantec console.

Client Security is Symantec's first multi-

protection desktop software aimed squarely at corporations because network administrators can control and configure it remotely — all from the Symantec Systems Center console. When it ships Client Security on Aug. 12, Symantec will take on vendors such as Network Associates, Zone Labs and Trend Micro to win the security

battle for the corporate desktop. The company shipped a similar product last year called Norton Internet Security Professional, but it was for home use only.

Security administrators say it's critical to have control of the employee's desktop so the employee can't alter configuration settings or even turn off desktop

protection.

A number of the 1,700 employees at General Casualty Insurance Companies would turn off the Norton AntiVirus application when they thought it was interfering with other application performance, says Kris Lang, the network engineer for the Sun Prairie, Wis., firm. This was unacceptable in terms of security, and it contributed to the insurance company's decision to switch to Trend Micro's desktop security software, because administrators can lock down configurations.

Symantec says Client Security will mark the first time it institutes desktop controls for antivirus, firewall and intrusion detection that can only be changed by an administrator.

"It has policy-setting lockdown," says Gary Ulmer, Symantec's group product manager. Client Security, to be available for Windows and XP, will be able to receive updated virus definitions and rules remotely at scheduled intervals without users being aware of the remote controls.

Client Security, said to cost \$46.10 per seat for 2,000 users, also will include software plug-ins for Microsoft Exchange and Notes Domino. It will be available in several European and Asian languages.

To encourage companies that use competing products to switch to Symantec's Client, Symantec is readying a so-called uninstallation tool that will let Symantec remotely uninstall a competitor's product and remove the existing software while keeping the customer's security settings.

Symantec: [www.symantec.com](http://www.symantec.com)

### Ford

continued from page 19

grown and now we're putting them into day-to-day use," Wood says. "As we are able to develop new ideas we will. But having a dedicated organization just to do that no longer makes sense."

Wood says the e-business activities that the ConsumerConnect group developed are not going away but are being integrated into Ford's global marketing efforts.

FordDirect.com — through which Ford doles out sales leads to its dealers — is still going to exist as a stand-alone entity, reporting to Ford's global marketing division, Wood says. The same goes for MyFord.com, Ford's consumer site for post-purchase services.

Ford will continue to fund Covisint, the auto marketplace in which it has about a 30% stake; along with ConsumerConnect offspring Percepta, Ford's CRM venture with TeleTech.

Folding e-commerce projects into traditional departments has good and bad implications, Prouty says. Putting e-commerce responsibilities in the hands of business managers is a good thing if a company has forward-thinking managers, he says. "The downside is you may end up with a business or brand manager who doesn't really understand what the tech-

**“Despite some reports, e-commerce is alive and well at Ford. In fact, e-commerce is evolving into its next stage of a very long life.”**

**Karen Francis**

President and CEO of Ford's ConsumerConnect e-business unit, January 2002



Francis in July 2002. Francis since resigned, effective Aug. 1, and Ford is disbanding ConsumerConnect.

nology can do."

Ford's decision to restructure its e-commerce efforts comes after a high-profile telematics retreat by the automaker. In June Ford pulled the plug on its 18-month-old Wingcast joint venture with Qualcomm. A telematics initiative out of the ConsumerConnect division, Wingcast was launched to provide Ford vehicles with onboard Internet and wireless technology.

"[Wingcast] spent a lot of money with-

**“We have spent the last year integrating the [ConsumerConnect] ventures and technologies into the basic business. That accomplished, it is also the best time for me to leave Ford to pursue other opportunities.”**

out really delivering anything," Prouty says. Unconfirmed reports say Ford pumped more than \$140 million into Wingcast.

Ford also has retreated from its plans to provide all employees with computers and Internet access. And last fall, Ford took a \$199 million charge to write-down "certain investments in e-commerce and automotive-related ventures," the company said in an October filing with the Securities and Exchange Commission. ■



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# Special Focus

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## Users learning to manage VoIP networks

■ BY DENISE DUBIE

**G**ary Todd knew that managing a voice-over-IP network involved a lot of preparation. So he and his staff tapped the knowledge of specialists with experience in data and voice communications and chose VoIP products from a vendor with a telecom background. But he still learned something new after implementing the network.

"We noticed we weren't allocating enough bandwidth to the voice applications," says Todd, OmniAmerican's assistant vice president of network services. Todd, along with Jim Evans, the company's vice president of IT, soon discovered they needed to apply quality-of-service (QoS) technologies, such as compression and priority routing, to the voice applications so they would get the bandwidth needed to perform across the data network at the Fort Worth, Texas, credit union.

Implementing QoS is one step network executives can take to help manage and ensure the VoIP network they deployed to save money in remote office connection costs will deliver the return on investment they want.

But users also must manage a number of new network elements, such as media gateways and IP phones, that they previously didn't have. IT staff also will be faced with more traffic to manage on the IP network, and new voice applications could affect overall network performance.

The need to manage VoIP environments is growing: According to a recent report from Cahners In-Stat, cor-

**“Voice applications are very demanding. You've got to give them everything they're asking for.”**

**Jim Evans**

Vice president of IT, OmniAmerican

porate adoption of IP telephony is on the rise with the U.S. market for VoIP handsets reaching \$1 billion in 2001. The report also found that the market for IP voice gear would reach \$5 billion by 2006 (see [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1521).

"Voice applications are very demanding. You've got to give them everything they're asking for," Evans says. "Make sure you have enough bandwidth and that the LAN and WAN equipment is sufficient for the voice."

VoIP poses performance challenges perhaps new to some network executives. Because VoIP technology puts voice information into a digital format and sends it as packets across the IP network, packet loss and delay become major flags of performance problems. Jitter also is a problem because it can cause delays or drop packets. Voice requires a steady stream of packets.

### Managing VoIP

**Users offered these tips for keeping a VoIP network under control:**

1. **Have priorities:** Prioritizing traffic will give voice applications the bandwidth it requires to perform well and prevent voice and data applications from battling over bandwidth.
2. **Keep it simple:** Try to use industry standard protocols, such as H.323 and Session Initiation Protocol, to increase interoperability across the VoIP network.
3. **Check with callers:** The end-user experience must be considered regarding application transport and performance to ensure the desired call quality is met.
4. **Manage one network:** View voice and data network performance, events and failures from one console to determine if and how one can affect the other and how to better configure the network to help both.
5. **Employ a jack-of-all-trades:** Many data network professionals are not experts at voice, and vice versa, so staff training on both sides of the network might be required.

Other performance management challenges are call quality and clarity. Call quality is a measure of conversational performance, while call clarity is more about how well the listener can hear. Delay has more of an effect on call quality, or a conversation, than call clarity, or a one-sided call such as voice mail.

### Vendor input

Many vendors are looking to address the needs of VoIP users. VoIP equipment vendors such as Avaya, Alcatel, Cisco and Mitel Networks offer software that gives customers a view into application performance. These tools typically rely on reading the VoIP protocols, such as H.323 and the Session Initiation Protocol, to get a handle on how fast traffic traveled the network.

Network management software makers such as NetIQ, NetScout, Integrated Research, Telchemy and Brix Networks sell VoIP-specific products that can manage voice and help customers understand the performance metrics of voice. And to maintain one consolidated view of the network, VoIP software can feed the voice-related data to a network management console such as Hewlett-Packard's OpenView, Tivoli Enterprise Console or Computer Associates Unicenter.

OmniAmerican uses CajunView VoIP management software from Avaya to track bandwidth and call statistics.

"The voice industry has always been about availability. While OK for data at times, [less than 100%] is not acceptable to a voice provider," says John Dinan, telecommunications analyst at the Santa Clara County Office of Education in California.

Dinan has yet to upgrade to VoIP because of the potential for poor call quality. "There are still many quality issues. Even with people using cell phones, users expect high quality on their wired phone."

In terms of QoS, OmniAmerican's IT staff is doing prioritization on the Avaya Cajun data switches, with port-specific prioritization on a few select data ports. Evans adds that latency hasn't been an issue due to the amount of available bandwidth they've provisioned for the voice applications.

Todd and Evans also upgraded servers and switches

with Avaya equipment and installed IP phones at remote locations.

Specifically, they upgraded the network with voice-enabled phone switches and dedicated IP phone switches. The digital phones at the branches communicate over the WAN to a voice-enabled switch, giving OmniAmerican one unified IP phone system, a centralized voice mail server and four-digit dialing to and from all its locations.

With the VoIP network, OmniAmerican saves about \$800 in local voice circuit charges per month at each of the company's 13 remote offices. Todd says the network upgrade lets OmniAmerican save up to 70% in connectivity costs using VoIP.

### Management help

Some enterprise users cannot afford the investment required to manage their VoIP networks. Cohen Financial, a real estate investment-banking firm, decided to outsource its VoIP management. John Ahlberg, CIO at the Chicago firm, says the company wanted to be able to dial four digits and reach any of its 10 offices across the country.

"The idea of voice over IP was great, but we wondered, 'Once it's installed, who are going to be the smart people to manage it?'" Ahlberg says. He needed to buy three new PBXs and find the expertise to manage the VoIP in his network, which "just wasn't cost-effective."

The firm decided to enlist the services of NetSolve, a management service provider, to oversee the VoIP network and alert staff at Cohen of network problems.


NetSolve supplies Cohen with the equipment, management tools and technology expertise to manage VoIP, and NetSolve uses a VPN to connect to the firm's network. Ahlberg says using NetSolve made investing in the new technology less expensive because he didn't have to invest in three new PBXs or add to his network staff to manage VoIP.

Cost wasn't the primary concern for Brenda Helminen, but implementing VoIP still saved her from financially supporting two networks. She's upgrading to VoIP to centralize and standardize her voice and data networks. "It's cost prohibitive to run two separate networks," she says.

Helminen, director of telecommunications engineering at Michigan Technological University in Houghton, is in the process of rolling out 3,000 to 4,000 IP phones across campus. Helminen uses local switches and OPS Manager software from Mitel Networks to ensure her phone service stays available. She says the 75 IP phones she has up and running use a virtual LAN supported by local switches to traverse the network. The virtual LAN prevents the voice applications from having to compete for bandwidth with the data traffic.

"Phone service is a business service. Most people don't see it as an IT service," Helminen says. "People expect to always have good phone service. I don't want to take any chances in losing service." ■



A black and white photograph of three men in a server room. They are standing in front of rows of server racks. The man in the center is wearing glasses and a dark shirt, gesturing with his hands as if explaining something. The other two men are looking at him. The server racks are filled with various components, and the room has a typical industrial feel with overhead lighting.

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# Service Providers

■ THE INTERNET ■ EXTRANETS ■ INTEREXCHANGE AND LOCAL CARRIERS  
■ WIRELESS ■ REGULATORY AFFAIRS

## International carriers also feeling pain

Experts say users need to keep a close eye on financials, staff changes.

■ BY MICHAEL MARTIN

The chaos wracking the telecom industry in the U.S. also is taking a toll overseas, forcing U.S. multinationals to take the same precautions internationally that they take at home. These include using multiple providers, not committing too much to any one provider and having contingency plans in place in case a provider fails.

Certainly the most dramatic international telecom failure has been the May bankruptcy of KPNQwest, one of Europe's largest data providers. KPNQwest gave its approximately 100,000 business customers five weeks to find new providers.

Earlier this month, Deutsche Telekom removed the company's CEO amid investor concerns. Earlier in the year international voice and data provider Teleglobe declared bankruptcy, as did Global Crossing. And WorldCom, which declared bankruptcy this month, also is a major international telecom provider.

Global Knowledge, an IT training organization, was one of KPNQwest's customers. The company has 16 sites in Europe that were connected to KPNQwest's Ebone IP backbone through a managed VPN service.

Global Knowledge couldn't find a managed VPN service from another Tier 1 provider at an affordable price, so the

### Choppy waters

Overseas carriers have had their share of trouble recently.

**Deutsche Telekom:** German carrier ousted its CEO earlier this month amid investor concerns about the telco's financial performance.

**KPNQwest:** One of Europe's largest data providers, the company went bankrupt suddenly in May, leaving customers scrambling for new connections.

**Teleglobe:** The international voice and data carrier went bankrupt in May, saying it would restructure around its voice business.

**Global Crossing:** Declared bankruptcy in January, claiming more than \$20 billion in liabilities.

company used DSL connections from local telecom providers instead, says Phil Beard, senior network engineer. Despite still not having connections for three of his sites, Beard says he isn't unhappy with the way KPNQwest handled the situation.

"They did as much as they could," he says. "They gave everyone as much warning as possible."

Many of the problems in the international market are the same as in the U.S.

See Foreign, page 27

### Short Takes

■ Managed infrastructure service provider **Interliant** is quickly running out of cash. The company announced last week that it does not have enough cash to fund operations beyond the end of the quarter. Interliant executives blamed the weak economy and a delay in the sale of one of Interliant's business divisions for the situation. The news comes less than two weeks after Interliant was delisted from Nasdaq. Interliant is considering all options and has hired Traxi LLC as its financial adviser to help it explore ways to regain its financial footing, including a possible Chapter 11 bankruptcy filing.

■ **Internet traffic in North America** is on track to **grow 85%** in 2002, but revenue remains down, primarily because of pricing pressures and a slow rollout of new IP services, according to telecommunications research firm RHK. The firm found that revenue per bit actually would decline by 46% this year as customers make better use of higher-bandwidth connections and take advantage of price breaks. Revenue is expected to total \$15.7 billion for the year. AT&T and WorldCom lead the market, but RHK expects AT&T to grow faster than WorldCom and become the clear leader in the next month or two. WorldCom leads in revenue for Internet services and is expected to hold that lead throughout the year, despite its recent bankruptcy filing.

## IBM expands hosting service options

■ BY JENNIFER MEARS

ARMONK, N.Y. — IBM is expanding the scope of its hosting services by adding support for SAP and Siebel applications, as well as for its WebSphere Application Server.

IBM's Application Hosting Service gives customers access to computing resources within IBM's e-business hosting centers around the globe. IBM also is making use of its SAP and Siebel expertise to manage and monitor the software deployments.

Customers purchase their own software licenses, either independently or through IBM, and IBM handles the logistics, says Dave Mitchell, global offering manager for application hosting services within IBM Global Services.

"We're going beyond managing infrastructure and moving into the application layer, and providing support services for application monitoring and application administration," he says.

The SAP offering includes support for enterprise resource planning and mySAP.com applications over the Internet. With Siebel, IBM is providing support for Siebel 7 general and industry-specific

applications. The WebSphere service offers WebSphere Application Server 4.0 or WebSphere Commerce Professional Edition 5.4.

Nationwide gift retailer Things Remem-

tage of IBM's Services Anywhere option, in which IBM hosts the application but the physical infrastructure remains on the customer premises. In instances where the application is hosted in IBM data centers, customers are given real-time access to system performance through IBM's e-business Hosting Connection portal.

"We looked for reasons why customers were not outsourcing SAP and Siebel, and it came down to three things: concerns over control, capital investment and complexity," Mitchell says. "These offerings are built to address those."

Analysts say IBM's announcement lends credibility to the application service provider (ASP) model, which has taken a beating during the past year or so.

"IBM has all the skills and resources to be the largest and most successful ASP if it wanted to be. But it hasn't really put its attention on this market for whatever reason," says Jessica Goepfert, an analyst with IDC. "They've grappled with what role to play and here they are coming out pretty strong saying we do have our own direct offering."

Pricing for the application hosting services varies by customer. ■

### Application hosting

IBM is expanding its application hosting capabilities.

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bered uses IBM to host its WebSphere Commerce application, which operates within the company Web site. Mark Fodor, director of e-business at Cole National, the parent company of Things Remembered, says IBM's service gives him flexibility to respond to spikes in traffic during hot shopping periods.

Customers reluctant to move into a completely outsourced model can take advan-





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# Don't forget about the good that WorldCom wasted

## EYE ON THE CARRIERS

Johna Till Johnson



Unless you've been hiding under a rock for three months, WorldCom's bankruptcy filing came as no surprise.

What is surprising is the degree to which former CEO Bernie Ebbers pulled off what was essentially little more than a Ponzi scheme. I used to joke that Ebbers was in the business of "buying companies and selling stock." Unfortunately for WorldCom employees, shareholders and, most of all, customers, it turned out not to be a joke.

That makes me angry. A lot of people are furious at the way they've been gypped. But now that the music's over and management is scurrying for cover, it's worth spending a minute to remember the company that was before the darkness set in.

As pretty much everybody knows, WorldCom was created through a series of acquisitions that included truly world-class providers such as MCI and UUNET. Getting acquired by WorldCom ultimately "eroded the value" of these companies, as the financial wizards say.

I prefer to describe it thus: Years of hard work by honest, talented people was

wasted by the greed and blindness of the gang at the top.

Remember MCI? Many of my friends and colleagues worked there, building one of the finest voice and data networks in the world, delivering cutting-edge services and regularly beating every other carrier to the punch. MCI was known for great technology and great marketing. Customer service was always somewhat spotty, but in the old MCI, you usually could count on your account team going above and beyond the call of duty to fix whatever went wrong.

MCI was one of two telephone companies that truly understood the Internet and invested millions of dollars in Internet technology before most of the world could spell IP. MCI had AT&T playing catch-up for more than a decade — no small accomplishment.

And UUNET? Aside from having world-class technology and transporting some 70% of Internet backbone traffic, UUNET was one of the only profitable ISPs. Back in the day, if you wanted service from UUNET, you called (former Chief Scientist) Mike O'Dell's home phone number. From that inauspicious beginning grew one of the Internet's most spectacular success stories.

That brings me to the final point. I've heard noise about how John Sidgmore, WorldCom's current CEO and the former CEO of UUNET, might not be the right guy to lead WorldCom, for various cockamamie reasons. I've known Sidgmore for years. He's an honest man and an outstanding businessman whose biggest mistake was selling his company to a bunch of hustlers. He will

do everything in his power to salvage what can be salvaged of the hard work and dedicated effort that went into building his company and the others that were sacrificed on the altar of unremitting greed.

Will it be enough? Let's hope so.

Johnson is senior vice president and CTO for Greenwich Technology Partners, a leading network consulting and engineering firm. She can be reached at [johna@greenwichtech.com](mailto:johna@greenwichtech.com).

## Foreign

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where telecom firms spent billions of dollars building out networks and the demand for bandwidth hasn't increased to keep up with supply. Compounding that problem, at least in Europe, is that many European carriers spent exorbitant sums to secure licenses for 3G wireless services and are now deeply in debt.

Brownlee Thomas, an analyst with Giga Information Group, says the worst of the fallout in the international telecom market is over. However, she warns, it's not impossible that another accounting problem, such as the one that undid WorldCom, could crop up at another international carrier.

One factor working in favor of some international carriers is that they are government-owned and a government isn't likely to let a carrier slide into financial disarray.

"If they're not government-owned, though, they have some vulnerability," Thomas says.

Of the remaining Tier 1 international providers, Giga ranks Equant and Cable & Wireless as the most financially stable, followed closely by AT&T, with WorldCom and Infonet bringing up the rear.

Thomas says business customers need to track their carriers' financial performance and keep a close eye on staff turnover and

executive changes. Going with a carrier only because of technology or price isn't a good idea in the current market, she says.

Giga also recommends users commit no more than 65% of their expected total telecommunications spending to one carrier. And where possible, users should include out clauses in their contracts, based on the market performance of their carrier.

One out clause that won't work is anything based on a Chapter 11 bankruptcy filing. Once Chapter 11 is filed, customers are locked into their existing contracts, whether they have a clause freeing them from obligation because of a Chapter 11 filing or not, according to Hank Levine, a partner in telecom consultancy Levine, Blaszk, Block & Boothby. ■



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# The Edge

■ SERVICE PROVIDER DEVELOPMENTS  
AT THE JUNCTURE BETWEEN THE ENTERPRISE  
AND THE NEW PUBLIC NETWORK

## Cisco struggling to have its VoIP heard

■ BY JIM DUFFY

SAN JOSE — Undaunted by the incumbency rivals enjoy with carriers, Cisco says it too will soon be able to trumpet successes in service provider packet telephony.

Cisco's leadership in enterprise voice over IP is well understood, because of the company's near monopoly position in enterprise data networks. But Cisco's fortunes in service provider packet telephony

have been less evident, even though the company says it's been pleased with its results.

"We feel reasonably positive, particularly as we run some of the largest VoIP networks in the world, most notably the ones in the People's Republic of China," says Phil Sherburne, general manager of Cisco's packet telephony call control division. "In service provider packet telephony overall, we certainly view ourselves as very much participating and as having been quite successful in a large number of service provider packet telephony deployments."

Cisco will announce some packet telephony wins this fall, focusing predominantly on voice over broadband, such as Ethernet and cable. Voice-over-broadband access is Cisco's sweet spot in service provider packet telephony.

Analysts await further clarity in Cisco's service provider packet telephony strategy.

"Cisco has a great packet telephony story for enterprise-based solutions, but it's been unclear what their direction is with respect to voice over IP in service provider markets," says Teresa Mastrangelo, a senior analyst with RHK. "There's no clear Class 4/Class 5 story. In the cable space, they have a good opportunity to gain some market share with voice applications based on their strong [cable modem termination system] presence, but even that is unclear as to which product would be part of that

### Now hear this

**Next-generation voice market is in its early stages.**

**Worldwide revenue for next-generation voice, in Q1 of 2002:**

- Hardware totaled \$36 million
- Software totaled \$217 million

**Products include voice-over broadband gateways, broadband loop carriers, voice/data switches, softswitches, remote-access concentrator VoIP gateways and voice application servers.**

SOURCE: INFONETICS RESEARCH

voice solution."

Sherburne says Cisco's BTS 10200 softswitch and PGW 2200 PSTN gateway are two products that can be used for call control in a cable or packet network. But for now, all evidence suggests carriers are handing their packet telephony business to their incumbent circuit-switching vendors.

Nortel just announced a packet-based Class 4 tandem switch trunking replacement pact with Verizon comprising Nortel's Passport ATM switches. Nortel says it has been awarded more than \$2 billion in voice-over-packet contracts.

Lucent recently announced an IP Centrex win with SBC Communications.

In both cases, Verizon and SBC went with their incumbent suppliers wrapping the potential of packet switching around existing TDM gear, Sherburne says.

"Those are longtime vendors for those customers, they clearly have relationships," he says. "When they're talking about doing TDM stuff then that is not a place we would go and actively try to compete."

Meanwhile, four Cisco service provider customers — China Unicom, iBasis, ITXC and Genuity — have carried at least 1 billion H.323-based VoIP minutes, Cisco says. China Unicom, Cisco's largest VoIP carrier, has transported more than 3 billion VoIP minutes, the company says.

"The largest packet telephony networks are Cisco-based," Sherburne says.

Cisco also has a competitive local exchange carrier customer in the Atlanta area deploying its BTS 10200 softswitch. Cbeyond is offering local telephony services and primary rate interface offload to small and midsize businesses.

Other Cisco call control customers include BT, Tiscali, Tele Danmark and OneTel/Scarlet.

"We have in the U.S., and outside the U.S., — in Asia, in particular — a number of trials under way and would expect in the fall to be making further announcements," Sherburne says. ■

### Takes

■ **Gold Wire Technology** last week announced that its Formulator line of network configuration control appliances now support VPN and firewall products from Cisco and NetScreen Technologies. This lets network operators and security directors use one system to configure most VPN and firewall devices in their network, Gold Wire says. The Formulator line supports NetScreen's NetScreen Systems and Appliances products, and Cisco's PIX Firewall series. Formulator also supports routers and switches from Riverstone Networks and Nortel.

■ **Riverstone Networks** has announced that Miami service provider Ntera has deployed the company's metropolitan routers in its voice-over-IP network to deliver more than 600 million call minutes per month. Ntera has installed Riverstone's RS 8000 routers as aggregation and core devices in more than 30 points of presence worldwide. The routers deliver voice services and applications, such as toll-bypass and prepaid calling, to carriers, corporations and consumers. The routers connect Ntera's voice gateways and the Internet, and aggregate and groom IP traffic. Ntera uses Riverstone's Hitless Protection System to help ensure toll-quality voice over dedicated bandwidth and the Internet, Riverstone says. HPS is designed to increase network uptime and avoid lost revenue. Financial terms were not disclosed.

## Broadband alive and well, firm says

■ BY JIM DUFFY

SCOTTSDALE, ARIZ. — Increasing demand for faster connections to the Web has led to "substantial" broadband subscriber growth over the past year, according to market research firm In-Stat/MDR.

At the beginning of 2002, the number of worldwide broadband subscribers passed the 30 million mark, and by the end of this year worldwide subscriber totals are expected to surpass 46 million, the firm says. DSL has become the premier broadband access technology in the international market, while cable modem service continues to do well in the U.S., according to the report.

In late 2001, the number of worldwide DSL subscribers surpassed 17 million, letting DSL service replace cable modem service as the most widely used broadband

access technology, In-Stat/MDR says. A sharp rise in the number of DSL subscribers in the Asia-Pacific region sparked worldwide DSL growth.

In the U.S., cable modem subscribers continue to outnumber DSL subscribers by a wide margin. At the beginning of 2002, there were 7.12 million U.S. cable modem subscribers and 4.6 million DSL subscribers.

The residential market will continue to be hotly contested between the broadband access technologies because of the low penetration and adoption rates expected for cable modems in the business sector, according to In-Stat/MDR. U.S. cable operators have rapidly made cable modem service available to the majority of residential customers while almost ignoring the business community, the firm says.

Meanwhile, the availability of broadband

access remains the greatest challenge to long-term broadband growth because the majority of the world's telecommunications infrastructure cannot yet support broadband access technologies.

Other broadband access technologies, such as satellite broadband, fiber-to-the-home and fixed wireless service, are merely bit players in the overall broadband access market, according to In-Stat/MDR. The three services account for only 5% of current worldwide broadband subscribers. ■



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# Technology update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

## Cryptography chip handles SSL traffic

■ BY BOBBY CROUCH

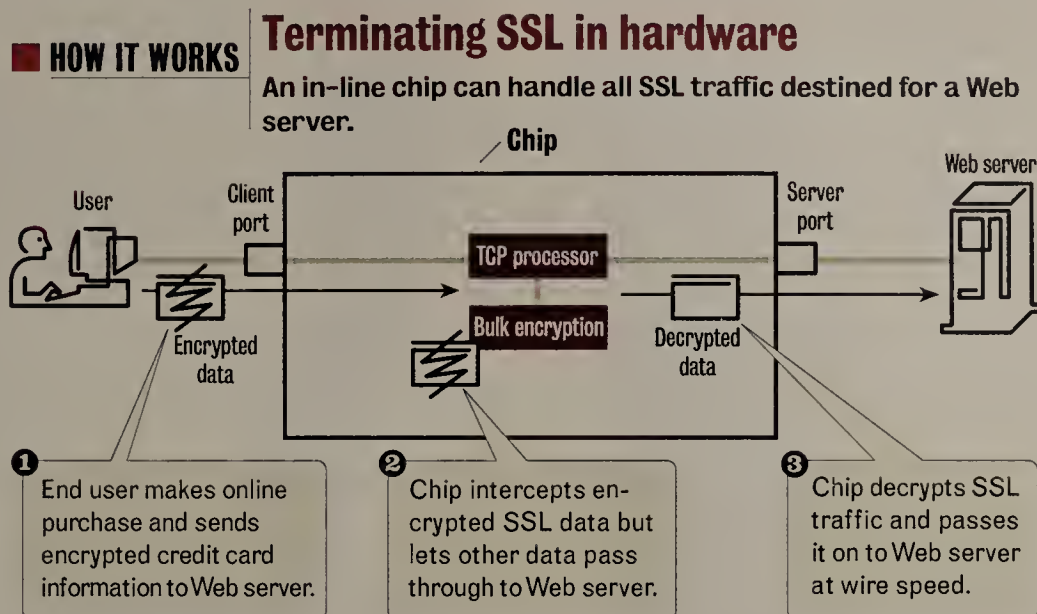
Secure Sockets Layer is the standard method of securing Web transactions. The mathematical computations necessary for SSL cryptography involve very large numbers and math functions not within the instruction set of most commercial processors.

These computations typically are done in software, creating a tremendous burden for servers; typically a two orders of magnitude performance decrease is observed. A server capable of processing 1,000 transactions per second can process only 10 transactions per second when they are all SSL-protected.

The traditional solution to the performance problem is to buy more servers with multiple CPUs to handle the secure traffic and ration secure Web pages to the minimum, critical set of transactions, such as credit card number exchange.

An alternative approach is to accelerate the SSL cryptography with coprocessors. These products perform RSA encryption or bulk encryption, or both; all still depend on a host processor (or the network processor) to send and receive SSL records to the cryptography chip.

They process up to thousands of new



SSL handshake requests per second. However, their approaches require substantial "glueware" to support the cooperative processing between the cryptography hardware and the host processor, and most still rely on the PCI (or PCI-X) bus to convey data between the cryptography chips and the host. This architecture increases complexity, and introduces performance bottlenecks because multiple exchanges between cryptography processor and host CPU take place to process even one SSL session handshake.

### System on a chip

One solution is to place an entire system on a chip to perform the traffic classification, the entire SSL protocol and all bulk encryption.

This removes any interaction with the host CPU, reducing complexity and significantly improving performance. A security

processor on a chip presents an industry-standard Gigabit Ethernet interface to the client side and another one to the server side.

One of the most intimidating hurdles to terminating large numbers of SSL sessions is processing the TCP/IP packets that encapsulate the SSL records. A gigabit of TCP/IP traffic alone will bury a traditional CPU, without ever setting up an SSL session.

The new chips integrate a high-performance TCP/IP processor that, for SSL traffic, handles TCP segmentation, packet re-ordering and other protocol functions that can bog down the host. The client-side interface is a Gigabit Media Independent Interface (GMII) port, which would sit directly behind a network interface card's (NIC), or appliance's, physical interface.

Client HTTP traffic is passed directly

through the chip to the server port, also a GMII interface. Incoming SSL traffic is routed to the cryptography section of the chip, which performs all the SSL protocol functions and bulk encryption, and grooms the resulting clear text messages before presenting them to the server port.

### Grooming is key

The target server will experience no performance degradation between SSL and non-SSL traffic and, in fact, could experience relatively better performance with SSL traffic, because of the groomed nature of the TCP/IP packets presented to it.

An in-line SSL solution is not valuable unless it performs all its network and cryptography functions at wire speed, up to 1 gigabit per second throughput, full duplex. This translates to the ability to handle up to 100,000 new SSL handshake requests per second.

Configuration, loading of SSL key and certificate files, and management information retrieval functions, are performed via a management port, which is a GMII interface. All management functions and communications can be secured with SSL.

The need to secure more network traffic, and achieve wire-speed performance, demands a new approach to cryptography technologies. The in-line approach creates a highly manageable SSL solution that achieves performance and is easy to integrate with Web server NICs, SSL appliances and other Layer 4-7 devices.

*Crouch is a business development manager for Layer N Networks. He can be reached at bcrouch@LayerN.com.*

### Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you have one and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).

## Ask Dr. Internet By Steve Blass

**We want to set up an FTP server for our network of 15 PCs. We had dynamic IP addresses in our Cisco 678 router. Now we have a static IP address on that router and on the server. DHCP is disabled on the router and enabled on the server. If we give static IP addresses to a few workstations, they can get Internet access, but there are not enough IP addresses for everyone to have a static address. How can we get the server to give out IP addresses internally?**

Use DHCP services from your server or your router to assign IP addresses to your internal network using DHCP configuration. Give the FTP server a fixed private IP address in your network and map requests for your fixed public FTP address to the internal address using network address translation (NAT). Establish a NAT entry in the Cisco 678 using the "set nat . . ." commands of the Cisco Broadband Operating System. Enable NAT with the "set nat enable"

command. Then establish the NAT mapping for your FTP server using the "set nat entry add internal-IP internal-PORT external-IP external-PORT tcp." A link to a configuration guide on setting this up can be found at [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1536.

**Blass is a network architect at Change@Work in Houston. He can be reached at [dr.internet@changeatwork.com](mailto:dr.internet@changeatwork.com).**



# GEARHEAD INSIDE THE NETWORK MACHINE

Mark  
Gibbs



**A**vid readers of *Network World* that you are, we are certain you saw in a recent issue an interesting item titled "Standard may bring order to e-mail chaos" ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1525).

The standard in question (which is technically a "proposed Internet standard") is the Internet Engineering Task Force's RFC 3028: Sieve: A Mail-Filtering Language (see [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1526).

According to the Sieve home page: "Sieve is a language that can be used to create filters for electronic mail. It is not tied to any particular operating system or mail architecture. It requires the use of RFC 822-compliant messages, but otherwise should generalize to other systems that meet these criteria" (read more at [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1527).

Sieve is a descendent of an earlier attempt at a mail-filtering system called Flame, an extension to the Andrew Mail System from Carnegie Mellon University. As

## Full-kilter filter

Flame scripts were written in Lisp, this was not something that system administrators could get excited about, and in 1994 work on Sieve began.

The potential power of Sieve is that when implementations become commonplace we'll have a basic filtering system that is independent of any vendor's bizarre ideas of rules (or whatever they choose to call their filtering system) that fails to work reliably and is only barely manageable (and we all know what product we're talking about here, don't we?).

Moreover, Sieve scripts will be portable so it's conceivable that your e-mail client will routinely download updated filters from Internet and intranet sources so common spam messages and anything else undesirable can be efficiently detected and dealt with appropriately.

Again, from the Sieve home page: "The language is powerful enough to be useful, but limited in power in order to allow for a safe serverside filtering system. The intention is to make it impossible for users to do anything more complex (and dangerous) than write simple mail filters, along with facilitating [graphical user interface]-based editors. The language is not Turing-complete, and provides no way to write a loop or a function. Variables are not provided."

So what we have in the RFC is a specifi-

cation of a basic scripting system and here's a sample script:

```
if header ["From"] contains ["coyote"] {
    forward "acm@frobnitzm.edu";
} else if header "Subject" contains
"$$$" {
    forward "postmaster@frobnitzm.edu";
} else {
    forward "field@frobnitzm.edu";
}
```

If the header contains the string "coyote" the message is forwarded to an address. Otherwise, if the subject contains "\$\$\$" (a common string found in spam message subjects) then it goes to a different address. Failing either of those tests, the message is forwarded to yet another address. See [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1528 for a much more ambitious example.

The RFC is quite easy to understand and we recommend you read it. It makes the architecture of Sieve quite clear.

But it will take some time for Sieve to become commonplace because there are lots of issues that are yet to be ironed out. For example, how can you prevent scripts from doing bad things? Even though the language doesn't support loops there is still the possibility for all sorts of hacks that could cause problems (for example, multiple message rejections by a script could

result in the creation of a mail bomb).

While Sieve is obviously a potentially powerful tool on the client side it is really interesting as an adjunct to an IMAP or SMTP server. Sieve scripts common to all users can automatically examine and manage user mailboxes, reducing workstation overhead, making large-scale distribution of scripts unnecessary and ensuring that corporate standards are maintained in a timely fashion.

There are only a few Sieve implementations available (see [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1529) but we suspect that others will appear as add-ons to existing mail servers in short order.

A client-side implementation (claimed to be the first to market) we have yet to try can be found in the Mulberry mail client from Cyrusoft International ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1530).

If you are desperate to try a serverside version, check out the Cyrus mail server ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1531) from Carnegie Mellon University's Computing Services Department. This server, which runs under Unix, supports IMAP, POP3 and KPOP along with a Sieve implementation.

*Unfiltered messages to gearhead@gibbs.com.*



## Cool Tools

Quick takes  
on high-tech toys  
By Keith Shaw

## Using compression to encrypt files

**I**f you've been looking for a way to secure files, either during storage or transmission, the use of updated compression software might offer some help.

We recently got a hold of PKWare's new PKZIP 5.0 compression software, which gives users the ability to encrypt and authenticate the files they're compressing. It offers users a great way to secure files they want to send, whether they place the files on a disk or send them over the Internet.

PKWare developed the .ZIP format in 1989, and has been one of the leaders in the compression market. Now, with the addition of strong encryption, it wants to lead file compression in new directions. The new software will come in two versions, basic (PKZIP 5.0 Standard Edition) and advanced (PKZIP 5.0 Professional Edition). The Standard Edition allows for traditional zipping and unzipping and adds basic levels of security by adding password protection for compressed files.

The Professional Edition can support multiple levels of security, up to Triple-DES, 168-bit encryption, with a movement toward the Advanced Encryption Standard. The advanced version also provides for automated compression, digital signing and encryption for Microsoft Outlook users. PKWare says a public-key infrastructure (PKI) is not required to realize the benefits of the product.

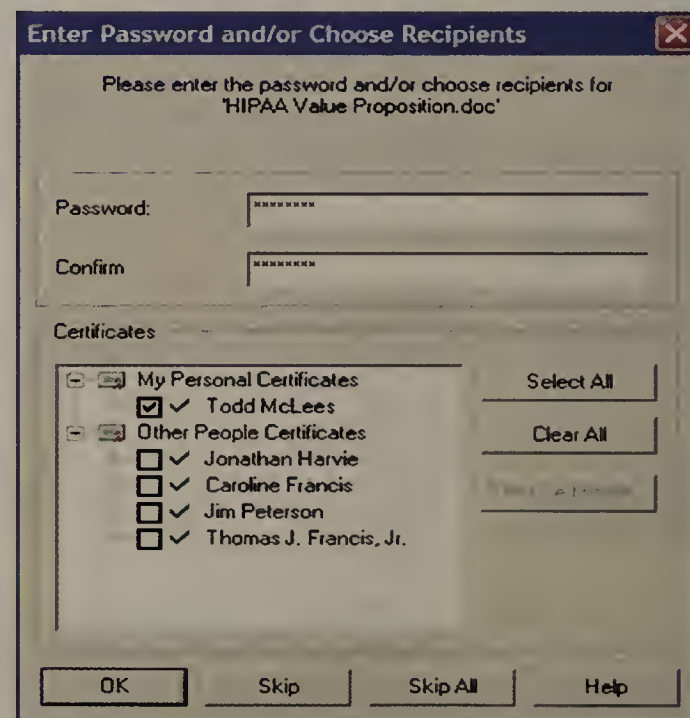
The software integrates support for standard X.509 Version 3 digital certificates with PKI to sign and encrypt the compressed files. When you compress a file, the soft-

ware lets you choose to assign a password and/or digital certificate (if available) to encrypt the files. You also can choose to digitally sign every file within a file archive.

Files created with PKZIP 5.0 (even password-protected ones) can be opened with other compression software, such as WinZIP, so users don't have to worry about recipients not being able to open the files (as long as they know the password, that is).

Another benefit can be the reduction of file size for encrypted files. When you encrypt a file, it generally increases the file size. Compressing the file with PKZIP before encryption requires less storage space than noncompressed encrypted files. This saves not only on storage space, but also can reduce the amount of bandwidth needed for transmitting the encrypted files.

The user interface should be familiar to users of PKWare's older versions or WinZIP. It was easy to create file archives, and even self-extracting archives, with this software. The addition of security features did not increase the complexity of using the software. We were impressed with the user interface and how easy we could



**PKZIP users can secure their .ZIP archives with passwords, or by using specific digital certificates to encrypt the files.**

accomplish the tasks of compressing and decompressing file archives. The software gave us the choice of a "traditional" or wizard-based interface, which offers users different ways of approaching the same task.

PKWare is looking at some vertical markets, such as government and healthcare, that have an increased need for secure file storage and transmission. But the software can benefit regular users looking to provide more security for the files they store or send. Both editions of the PKZIP software are available for Windows 98, ME, NT 4.0,

2000 and XP systems. It also is available for Unix (Linux, HP-UX, SPARC Solaris, IBM-AIX), mainframe, AS/400 and DOS systems. The Professional Edition is available now via PKWare's Web site ([www.pkware.com](http://www.pkware.com)) and will cost about \$50 (a special offer for \$40 expires around Aug. 15). The Standard Edition costs \$30 (with a special offer of \$25 until Aug. 15).

*Shaw can be reached at [kshaw@nww.com](mailto:kshaw@nww.com).*



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## EDITORIAL

John Dix

## Riding out the WorldCom waves

**A**lthough pundits point out that WorldCom is asset rich (\$107 billion) and thus likely to survive bankruptcy, entering Chapter 11 is a triple whammy for the already shaky telecom community.

For one, companies that provide products and services to WorldCom will end up collecting a fraction of the money they are owed, which might be catastrophic for some companies already teetering on the edge.

Adding insult to injury, WorldCom payments made in the last 90 days are subject to review, and many will be recalled under a complicated bankruptcy law called preferences. This means some suppliers will not only have to kiss outstanding receivables goodbye, they'll also have to return WorldCom payments for products delivered/services rendered.

Topping it off, WorldCom is in such dire straits it is forecasting capital spending in 2003 of only \$2.1 billion, down from \$7.9 billion in 2001 and \$11.4 billion in 2000.

Taken together, it's clear the filing will have wide-ranging and lasting industry consequences, particularly for equipment suppliers. But what does it mean for customers?

To dispense with the obvious: WorldCom cannot lay off 28% of its workforce — about 17,000 employees — without degrading service levels. Expect shifts in account personnel, installation delays, mistakes and problems.

But as Gartner points out, Chapter 11 doesn't invalidate customer contracts. You cannot jump ship without paying penalties spelled out in your deal, nor is that necessary given WorldCom isn't going to dry up and blow away. Now would be a good time to 1) pay close attention to any service-level agreements you have, and 2) revisit your diverse routing plans.

Regarding the latter, new route control products can help ensure you are getting the most out of existing multi-homed Internet links and even let you use services like DSL to back up Internet links serving smaller branch offices.

Gartner offers one piece of counterintuitive advice: "Enterprises should sign contract extensions of longer than six months to avoid higher month-to-month pricing and allow reasonable time to find an alternative. When considering contract extensions... investigate WorldCom's Customer Satisfaction and Loyalty Program — a series of renewal incentives offered for a limited time, including a low-risk, 'easy out' six-month extension."

While WorldCom says it has no plans to split up the company, that seems inevitable. We would expect something along the lines of what AT&T is going through. Plan accordingly.

— John Dix  
Editor in chief  
jdix@nwu.com

### False alarms

Your story on intrusion-detection systems was excellent ("Crying wolf: False alarms hide attacks," [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1435). I read the whole thing, including the deployment tips and glossary. Lots of good info there. I enjoyed reading this well-written and -researched story.

Tim Bowen  
Product manager  
Genuity  
Burlington, Mass.

Overall, "Crying wolf: False alarms hide attacks" is a very fair story. Having to tune out "false positives" is a headache for administrators, but a necessary evil.

Snort doesn't have a built-in graphical user interface, but there are many plug-in interfaces that work well with it. Snort Snarf, from Silicon Defense, extracts data from the Snort databases and places it in a GUI interface via your Web browser.

Jeff Haynie  
Athens, Ga.

"Crying wolf: False alarms hide attacks" struck a chord with many security professionals. Of particular interest was the topic of false alarms generated by IDS products when put "in the wild."

At the crux of this debate is the need for realistic testing environments and evaluation standards for IDS products. IDS sensors are almost universally tuned to specific operational needs to maximize performance and minimize false alarms. Test environments that do not take this into account in a realistic manner do not paint an accurate picture of actual IDS performance in a real-world setting.

It is very important that vendors, customers and reviewers work together to understand how IDS

E-mail letters to [jdix@nwu.com](mailto:jdix@nwu.com) or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

# opinions!

products are actually used in a real-world environment so that testing better reflects day-to-day performance expectations. Otherwise, the ability to tune an IDS becomes lost among unrealistic frequent false alarms raised by the testing process itself — even though tunability is a key differentiator for IDS customers seeking the best protection and value.

Tim McCormick  
Vice president, marketing  
Internet Security Systems  
Atlanta

*Editor's reply: We fully agree that IDSes should be appropriately sized and tuned to the networks they monitor. Prior to the start of testing, we gave all participants detailed information about the live production network we planned to use so they would send the appropriate products for the network environment. All participants, including Nokia/ISS, had full knowledge of conditions on the live network before, during and after our test. As the story details, we spent a significant amount of time attempting to tune these products to work better in our test environment; however, we found that most lacked the tools that let a user tune them in a useful way.*

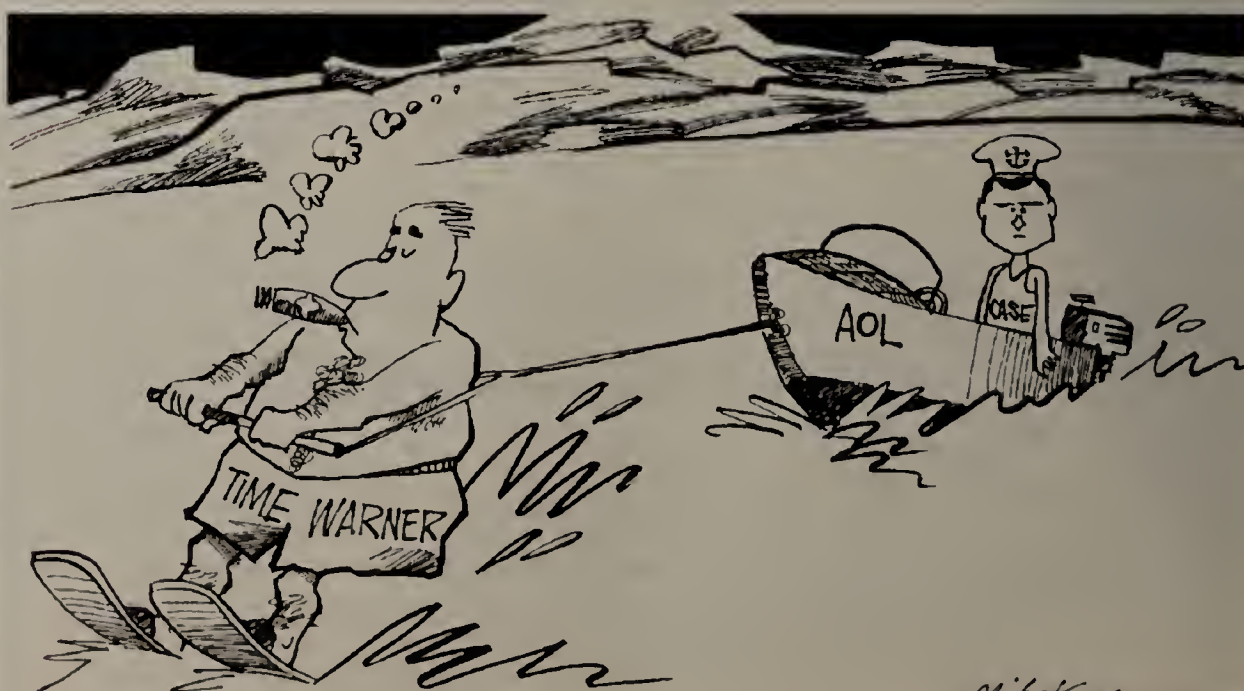
### Changing times

Jeff Kaplan's column "Whom can you trust?" ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1523) brings up some valid points: "[Industry analyst/research firms and venture capitalists'] bold pronouncements of revolutionary changes in computing and communications also encouraged many customers to acquire bleeding-edge technologies and poorly provisioned services that failed to meet their real business needs." The old adage "Let the buyer beware" comes into play here, but rapid change makes it difficult to make an informed business decision.

Linda Maksimik  
Fort Washington, Pa.



**More online!** [www.nwfusion.com](http://www.nwfusion.com) Find out what readers are saying about these and other topics. **DocFinder: 1434**



Mike Keefe 2002





## TOTALLY UNPLUGGED

Ira Brodsky

**I**t looked like wireless data would succeed first in the corporate world. A growing corporate market for wireless data would fuel a steady decline in prices, gradually leading to consumer applications.

There is now evidence that consumer applications of wireless data will take off first, creating unexpected opportunities — and perhaps problems — for corporations.

The driving force behind wireless data won't be field automation; it will be entertainment — mobile games, polyphonic ring tones and animated screen savers. At first glance, mobile games might look like a poor substitute for PC and video games. But mobile games offer things PC and video games can't. Users carry mobile devices with them everywhere, and packet-switched wireless data offers service that is always on, enabling "persistent" games that can be played in short bursts over a period of days or even weeks. Wireless networks and handsets are also being upgraded to pinpoint users' current locations, enabling "massively multiplayer" games that take place on the streets.

This explosion in wireless entertainment creates two major opportunities for companies that sell to consumers. Mobile games, ring tones and screen savers are powerful brand promotion tools. Contests, one of the simplest types of mobile games, can double as a market research tool for polling a large number of consumers on short notice.

Movie studios are pouncing on mobile entertainment as a hip, new marketing channel. What better way to promote a movie than to let

# Games: Wireless killer app?

mobile phone owners use the movie's theme song as their ring tone?

With more than 135 million mobile subscribers in the U.S., mobile phones are a relatively unobtrusive tool for conducting market research. Companies will sign up with mobile operators to conduct market research on short notice, and operators will oblige them by sorting users (with their permission) by location and/or demographics.

The growth of wireless entertainment also poses risks for corporations. New mobile phones will be able to download games. That means they also will be able to download viruses. There have been reports of mobile phones unwittingly downloading self-disabling code.

Today, there are two major software development environments for mobile games: Qualcomm's Binary Runtime Environment for Wireless (BREW) and Sun's Java 2 Micro Edition (J2ME). BREW offers a controlled environment with built-in security. J2ME is a more open environment, though security is optional. Texas Instruments' Open Multimedia Applications Platform also is likely to become a factor as wireless services expand into streaming media.

Just when we thought wireless data would prosper first in field automation, a back door has been thrown wide open. Organizations that rely on wireless phones must start worrying about denial-of-service attacks. But they also should prepare to handle requests from their marketing departments to leverage this powerful new medium.

*Brodsky is president of Datacomm Research of Chesterfield, Mo. He can be reached at [ibrodsky@datacommresearch.com](mailto:ibrodsky@datacommresearch.com).*

**There is now evidence that consumer applications of wireless data will take off first.**



## REALITY CHECK

Thomas Nolle

**W**orldCom isn't in financial trouble because of accounting inventions. The accounting inventions are a result of WorldCom being in financial trouble, and the source of the trouble is simple: no earnings growth. That same problem will ultimately affect Sprint and AT&T, and left unchecked, it will destabilize even the regional Bell operating companies. What ails earnings is lack of new revenue, for WorldCom and the rest of our industry.

The fastest way to get earnings is to steal revenue from competitors — meaning build market share. This doesn't require that consumers change buying patterns, just from whom they buy. Just recently Verizon launched long-distance service in New Jersey, and we immediately changed our carrier, and so will others. The communications pie in the U.S. might not get bigger in the last half of this year, but more of that pie will shift to the RBOCs. It will sweeten their bottom line and encourage further investment in infrastructure. The decline of the interexchange carriers will boost the remaining players — the RBOCs.

Still, competing for service revenue eventually will lead everyone to ruin. We need to get new dollars on the table, and for that we need to look to the Internet. Not to the "collapse of the entire telecommunications infrastructure into the Internet and call it convergence" theory, but to the public data model the 'Net represents. That model has to save the industry, but there are issues in making it happen.

**Issue No. 1** is broadband deployment. New broad-based applications of nonvoice service clearly require faster access connections for consumers and small businesses. While it's nice that the Bush administration is backing its Federal Communications Commission chairman in an orderly change of broadband policy, it would be nicer if we saw some of the changes in our lifetime. The threat of impending FCC action is hampering even the anemic attempts to develop non-RBOC broadband service options, such as cable modems and wireless, but we don't have the benefits to offset these competitive losses because we don't have a final FCC ruling. Let's get with it, guys.

**Issue No. 2** is intellectual property. Do you want to work for free?

# Earnings instead of inventions

Chances are, actors and singers are equally unenthusiastic about the idea. Producing records or movies, or writing games and software, is going to proceed at a pace determined by how profitable it is for all those involved. Free distribution of the stuff doesn't create profit, and so doesn't create the incentive to produce. Broadband hasn't taken off even where it's available in large part because we can't create unique broadband value for the Internet consumer. The reason is that the owners of the media content are concerned about wholesale piracy of their work, as they should be. The Internet has taken copyright violation to new heights.

**Issue No. 3** is technology policy at the highest level. It's clear that we are hamstrung today by the inertia of our old voice-age networking gear. Tax credits might encourage broadband deployment, but they won't address the larger problems. We don't have packet infrastructure today; we don't have packet voice. We don't have 3G wireless universally deployed. We have old stuff that isn't fully depreciated, and the remaining cost of this dinosaur technology impedes its replacement. We need to look at tax incentives aimed at lessening the impact of replacing old technology.

**Issue No. 4** is hype. Telecom has the dubious distinction of being the investment area where the gap between what was widely predicted and what has actually occurred is the largest. If we get all gaga over every half-baked but exciting concept that's presented, we create a climate where "investors" are really thinly disguised con men trying to perpetrate a pyramid swindle on the public — which is just what Enron and WorldCom look like to many. A climate of realistic assessment of new options is critical in getting stable financing to make those options really pan out.

We're going to have accounting fixes in the coming months, and regulators will promise that something like WorldCom won't happen again. All of it is good and necessary, but without revenue relief, no regulations will restore confidence in this industry.

*Nolle is president of CIMI Corp., a technology assessment firm in Voorhees, N.J. He can be reached at [tnolle@cimicorp.com](mailto:tnolle@cimicorp.com).*

**We need to get new dollars on the table, and for that we need to look to the Internet.**



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**S**ecurity, according to Helen Keller, is a superstition. It's found nowhere in nature, but we keep trying to achieve it, and there are many products on the market to help us. The most common — firewalls — are widely installed and continue to evolve with features and functionality.

But firewalls, posted at enterprise network portals to limit access from the Internet, are only part of a comprehensive security strategy. They don't provide protection from viruses that enter through e-mail servers, for example. Nor do they offer protection against individuals downloading or e-mailing content that could put your company at risk.

To address these security risks, you can look at secure content management (SCM) devices, such as antivirus and content-filtering products.

According to IDC's recent assessment of the SCM market, worldwide revenue in this segment reached 2 billion in 2001, representing a 22% growth rate over 2000. That growth was because of the increasingly sophisticated techniques that are being used to exploit security vulnerabilities. Forecasts for the market show it reaching \$4.8 billion in 2006 (see graphic, page 38).

Network World Global Test Alliance member Miercom last month kicked the tires of six antivirus products and six content-filtering devices to uncover vulnerabilities, assess features and determine how the products can be best deployed in corporate networks.

Overall, the products we examined worked well — detecting about 99.9% of the viruses we threw at them and blocking access to designated Web sites almost flawlessly.

But products that offered the most extensive security options were also harder to configure and use. We also uncovered some subtle vulnerabilities that, although not showstoppers, could pose some security risks.

## Questions to ask when selecting content security products

- What are the ease of use vs. depth of protection trade-offs?
- Can you schedule virus updates to occur automatically during off-peak hours?
- How much bandwidth do these virus updates consume?
- How will various inline security products work together in the network? Are there points of failure that will be hard to isolate?
- How does the vendor keep up to date on virus definitions (through in-house resources or third parties such as Trend Micro, Norman Virus Control and BitDefender)?
- How will you keep track of patches for known vulnerabilities and make sure they are distributed around your network?
- Where is the best place to deploy antivirus protection in your network (on clients, servers and/or e-mail gateways)?
- How does a content-filter vendor track and update URL lists?
- Does the content filter offer you the ability to customize your own filter list?
- How context-sensitive is the content filter? Will it block more than you want?

### Ease of use vs. granularity and features

Three trends were clearly evident among the products we examined (see online product chart [www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1432). First, security vendors are taking

Access Protocol and POP3 traffic.

Mitel's SME Server is a network appliance incorporating SMTP gateway antivirus protection, a file server, content filter, Web server, FTP server, SMTP/POP3 mail server, Lightweight Directory Access Protocol server and an IP Security VPN.

CacheFlow's Security Gateway 800 was unique, incorporating content filtering into its Web caching and acceleration appliance. The product reduces the load on existing firewalls by absorbing and filtering content from Web servers by protocol, such as HTTP or FTP traffic, file type, such as executables, and Multi-purpose Internet Mail Extensions. It also supports third-party virus scanners.

We focused on the antivirus and content-filtering capabilities of these products and did not examine their other capabilities.

### Antivirus products

Estimates of how many viruses are generated worldwide on a weekly basis vary widely — from hundreds to thousands. The truth is probably somewhere in between. But even a hundred new viruses per week is a lot to keep up with, and no antivirus product will catch every new virus that comes along.

Security experts disagree as to whether it's even necessary for antivirus products to offer protection against a large number of known viruses, especially if they're not widely dispersed. But all agree that it's more important to assess and quickly report those, such as the Klez virus, that are most likely to have more widespread dispersion or are particularly malicious. Klez specifically targets Microsoft mail products. It invades users' personal address books, mailing viruses to and from those on a personal mailing list, creating a chain reaction that spreads rapidly.

Some antivirus vendors recommend daily updates of virus signature databases. All antivirus products

we examined support the ability to schedule updates to occur automatically at scheduled, off-peak times to limit the affect on network performance.

Some vendors, including GFI Limited and F-Secure, support more than one antivirus scanning engine, offering the ability to multiply the user's chance of catching viruses on one engine that could be missed on another. GFI's Mail Security supports three engines, which scan incoming mail sequentially. Users can change the order of the scan to take advantage of the efficiencies of one engine over another.

An alternative to choosing a product with multiple engines is to deploy antivirus products from different vendors at various places in the network, with, for example, one on client and server machines and another on an e-mail gateway. But the downside is no central management of antivirus resources. Doing this also could increase bandwidth usage as different products download multiple sets of virus signatures.

Also an issue with antivirus products is deciding where to deploy them. Using antivirus software on

# Looking beyond firewalls for security

## Can antivirus wares and content filters beef up your protection?

■ BY BETSY YOCOM, MARC FRIGO AND DAN VAN DERVEER,  
NETWORK WORLD GLOBAL TEST ALLIANCE

the ease of use issue seriously.

N2H2's Sention FS/Red Hat Linux content-filter required only checking boxes to select blocked sites. SurfControl's Web Filter and E-mail Filter used simple drag-and-drop actions to define security rules.

But the downside to ease of use results in a lack of scalability and granularity. The two products that were more time-consuming to implement, Symantec's Norton Anti-Virus Corporate Edition and the F-Secure Anti-Virus for Workstations/Servers, also offered far more security options and flexibility in setting and defining security rules. Some security expertise is definitely required to work with these products.

The third trend is that many vendors are incorporating multiple security functions, such as antivirus, content-filtering and intrusion-detection systems (IDS) into one system.

Fortinet's FortiGate-400 incorporates firewall, VPN, IDS, content filtering and virus scanning for Web and e-mail onto an appliance that allows real-time in-line scanning of HTTP, Simple Mail Transfer Protocol, Internet Message



e-mail servers prevents viruses from getting to server and client machines. This reduces the number of alarms an IT team has to deal with because the viruses are blocked at the e-mail gateway.

But e-mail-based antivirus products won't prevent someone from introducing viruses into a client machine through an infected diskette. Securing an e-mail gateway also won't protect against Web-borne viruses.

## The WildList

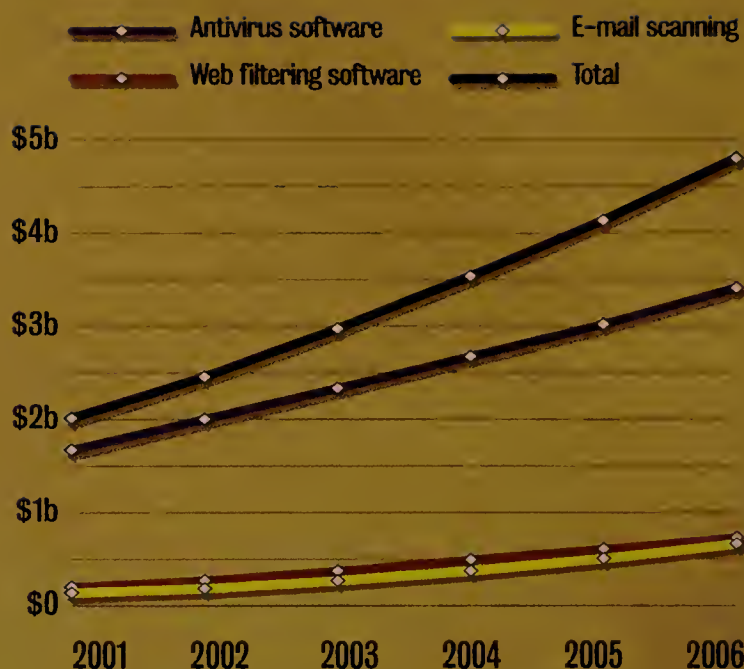
All the antivirus products detected almost all our virus attacks, which consisted of four major categories of viruses: Web-borne script viruses, Trojan Horses, worms and legacy viruses. The object of our testing was to launch a broad set of viruses against the machines to look for common vulnerabilities.

Before testing, we collected viruses from a variety of sources, including some we had received in our own network and some taken from vx.netlux.org, a repository of virus

## Securing your content

Because of the increasingly sophisticated techniques that are being used to exploit security vulnerabilities, IDC forecasts that worldwide revenue of secure management software will hit \$4.8 billion by 2006.

SOURCE: IDC



CacheFlow's Security Gateway 800 incorporates content filtering into its Web caching and acceleration appliance.



CacheFlow's Security Gateway 800

Fortinet's FortiGate-400 incorporates firewall, VPN, IOS, content filtering and virus scanning for Web and e-mail onto an appliance that supports inline scanning of HTTP, SMTP, IMAP and POP3 traffic.



Fortinet FortiGate 400

Symantec's Web Security software supports Dynamic Document Review, which provides granular context-sensitive scanning of a Web page to check the context of questionable words that might otherwise be blocked by a content filter. This prevents blocking, for example, a page containing references to "sex education" or "breast cancer."



Symantec's Web Security

source code and executable code.

We cross-referenced our test viruses against the WildList

(www.wildlist.org), a repository of known viruses, developed in 1993. The WildList is an

industry standard against which many vendors test and certify their products. Our attack list incorporated

about 20 selected viruses. They included Melissa, Klez H., HTML

Party, Nimda.A, CodeRed A., EvilBot and LoveLetter.

We uncovered only a minor vulnerability,

and in doing so stepped into a war

concerning the use of legacy and variant viruses to

test antivirus products.

The Sophos Anti-Virus and Fortinet FortiGate 400 products did not detect a legacy virus and a variant of that virus we ran, while the F-Secure, GFI, Mitel and Symantec products did.

Sophos, Fortinet and other security vendors

base their known virus signature

databases primarily on those listed on the

WildList, contending that viruses not on the list

(referred to as "zoo" viruses) pose little threat (because they're

old or were not widely distributed) to their end users.

We ran a variant virus to check the products' pattern-

matching (or heuristics) abilities. In a variant

virus the source code of a known

virus is slightly modified, only enough to let it slip by an antivirus filter. Using heuristics, an antivirus product detects a suspicious pattern in the code, and even though it might not be able to name it, it flags it. The products we tested all supported this feature — some, such as Symantec and F-Secure — to a more granular level than others.

The argument for testing against the WildList is sound, but be aware that there is nothing to prevent someone from using the same public resources to create and launch virus attacks based on older viruses or to create variants of known viruses.

## Content filtering

The main function of a content filter is to assess the top sites accessed within the network and block access to Web sites that a company determines

objectionable (such as pornography, hate organizations and gambling) or time-wasting (shopping sites, sports and entertainment).

How and why an organization decides to use content-filtering products shouldn't be taken lightly. Issues involving the rights of the individual vs. the company, along with other legal liabilities, surround their use. Companies should clearly define why, where, when and how they use content filters across their networks.

To test the products' filtering abilities, we first perused the Internet to create a list of Web sites, which were divided among a number of typically objectionable categories, including

adult content, hacking, shopping and gambling sites.

Using an open source utility called wget that downloads an entire Web site, we created a script that downloaded 65 Web sites on our "block" list. We then had each content-filtering device download all the items on our list to determine which were blocked and which weren't.

Overall, the products performed very well. A few missed one site or another. Symantec's Web Security missed one adult site; N2H2's Sentian failed to filter one pornography site; CacheFlow's Security Gateway 800 missed one gambling site.

We also checked whether it was possible to circumvent the products' content filters. To test this, we resolved the IP address of a known blocked site via a ping and attempted to access the site by entering the IP address in a Web browser in place of the URL.

We gained access via IP address to one known blocked site that used load balancing to access multiple servers and, therefore, had multiple IP addresses. Some of these IP addresses were not on our content-filter lists. We also determined that the DNS reverse-lookup capability on the site had been disabled, preventing us from resolving the IP address to the URL, which could then be used by the content filtering prods checked against our filter list. To correct this, we

created an additional rule on our content filters to block sites that could not be resolved to a URL.

A differentiating factor among content filters is their ability to filter based not only



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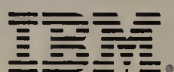
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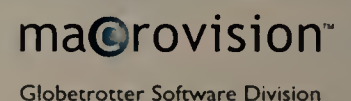
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## Security Continued from page 38

on a word but also on the context in which a word is used. Symantec's Web Security was the only product that supported Dynamic Document Review, which provides granular context-sensitive scanning of a Web page to check the context of questionable words that might otherwise be blocked by a content filter. This prevents blocking, for example, a page containing references to "sex education" or "breast cancer."

The content-filtering products were all fairly easy to integrate into our network with minimal downtime. We plugged the products inline, and they were functioning in less than 1 minute. Most products also easily integrated with directories and user groups that already were set up on our network.

We encountered an interesting deployment issue on Surf Control's Web Filter. The product, which resides between client machines and the Internet, passively captures traffic. If it detects a user trying to access a blocked site, it spoofs the blocked URL, sending an access denied message back to the user.

Because of the specific setup required on the Web Filter product, letting it capture and transmit data on the network, we could not use the device on our Extreme Summit 48 switch, which supports only receive transmission on its mirroring port. (We connected Web Filter to a hub.) Presumably, Web Filter would have worked on a switch that supported transmit and receive traffic on its port mirror.

While we typically think of content filtering in the context of blocking access to Web sites, it is also applicable to content leaving and entering a corporate network via e-mail.

SurfControl offers a product called E-mail Filter, which supports filtering and routing of e-mail based on a variety of rule sets. E-mail that doesn't match the rules invokes triggers that isolate, discard, allow or delay it.

The SurfControl E-Mail Filter we examined didn't support the capability of filtering internal e-mail, but the vendor offers a version of E-mail Filter that integrates into Microsoft Exchange and lets you scan incoming and outgoing internal mail.

One vulnerability on all the content filtering products is that there was nothing to prevent someone whose computer is blocked from accessing a certain site from

using another person's computer to access those sites if that PC was not properly locked down.

### The human factor

While content filters and antivirus products might play a key role in a company's overall security, it's also important to determine how people

can circumvent even the best-laid security plans.

All the security products in the world won't protect a network against user error, lack of training on security procedures, improper configuration, incorrect use of passwords or malicious intent from within.

Humans have a knack for figuring out

how to circumvent security devices, and many also like the challenge.

*Yocom is senior editor and Frigo and Van Derveer are test engineers at Miercom, an independent testing lab in Princeton Junction, N.J. They can be reached at byocom@mier.com; mfrigo@mier.com; and dvanderveer@mier.com.*

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■ Is your ISP measuring up? Find out with our Top ISP Report, a joint venture between *Network World* and eTesting Labs' Internet BenchMark service ([www.etestinglabs.com](http://www.etestinglabs.com)). The data here is for June 2002; each month you can go online at Network World Fusion for the latest data.

The chart at right shows you the top dial-up ISPs in the market and how they performed in eight metrics, as determined by eTesting Labs' Internet BenchMark data. We analyzed 20 ISPs. If your ISP isn't listed among the top performers, ask it why it's not performing as well as its competitors.

## Top ISPs profile, June 2002

### Network World analysis

#### National retail

**AT&T WorldNet** • Clear winner; still a class above others in this space.

#### Regional retail

**BellSouth** • Strong showing with top spots in five out of nine categories tested.

#### Business-to-business

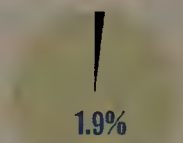
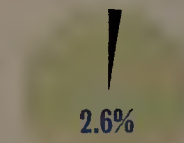
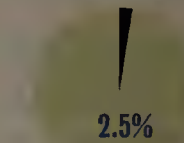
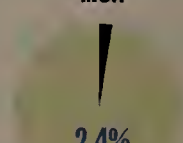
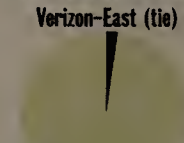
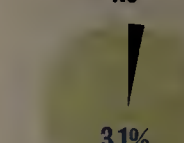

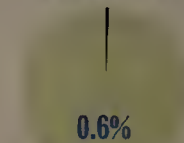
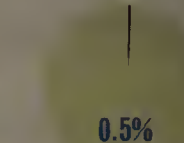
**AT&T (BIS)** • Strong contender in a weakening market.

## How we did it

Our data comes from eTesting Labs and its Internet BenchMark division. *Network World* takes the data and applies statistical analysis to rate the relative performance of each ISP compared with the other ISPs within the same market classification (national, regional or business-to-business ISP). Based on that analysis, we rank the top ISPs for the month listed. The chart on the right lists the ISPs that perform best, average for the nation listed and the average for that classification.

# The Top ISP Report

How is your dial-up ISP performing?

	National ISPs	Regional ISPs	B2B ISPs
<b>Initial modem speed ■</b> Measurement of the negotiated connection speed to your ISP once the call has successfully gone through. <i>Average for market:</i>	<b>Broadwing AT&amp;T</b> 49.37K bit/sec	<b>BellSouth Verizon-East Qwest</b> 49.06K bit/sec	<b>AT&amp;T (BIS) XO McLeodUSA</b> 49.13K bit/sec
<b>Average time to log on ■</b> Reflects the time taken to connect and authenticate to a provider network access server once the modem takes the line off-hook. <i>Average for market:</i>	<b>AT&amp;T Broadwing EarthLink</b> 29.61 seconds	<b>SBC Southwestern Bell BellSouth</b> 29.4 seconds	<b>AT&amp;T (BIS) McLeodUSA</b> 29.96 seconds
<b>Average download time ■</b> The time taken for the Web page to download, including all page content. Calculated by measuring the time from the first HTTP TCP packet being sent to the server until the last HTTP TCP connection has terminated. <i>Average for market:</i>	<b>AOL CompuServe Broadwing</b> 28.19 seconds	<b>Verizon-East BellSouth SBC Ameritech</b> 30.55 seconds	<b>AT&amp;T (BIS) McLeodUSA</b> 29.89 seconds
<b>Average DNS lookup ■</b> The time from sending the first DNS query until a response is received from any query. This reflects the end-user perception of the DNS resolution time, including retries. <i>Average for market:</i>	<b>AT&amp;T EarthLink Prodigy</b> 344.77 msec	<b>SBC Southwestern Bell SBC PacBell SBC Ameritech</b> 303.88 msec	<b>AT&amp;T (BIS) WorldCom Genuity</b> 431.57 msec
<b>Average Web throughput ■</b> The effective transfer rate of the connection. The average of these Web throughput measurements is presented in the reports. Throughput does not necessarily reflect the bandwidth of the connection, but rather the effective Web throughput experienced using a connection. <i>Average for market:</i>	<b>Broadwing AT&amp;T Prodigy</b> 5.14K byte/sec	<b>Verizon-East BellSouth SBC Southwestern Bell</b> 5.31K byte/sec	<b>McLeodUSA AT&amp;T (BIS)</b> 5.39K byte/sec
<b>Evening-hour call failure rate ■</b> How often a modem call to the provider gets through successfully during evening hours. A failure would include a busy signal, ring no answer, modem problem or logon failure. The lower the CFR, the better. <i>Average for market:</i>	<b>AT&amp;T Juno/MSN/ Prodigy (tie)</b>  1.9%	<b>BellSouth Qwest Verizon-East</b>  2.6%	<b>AT&amp;T (BIS) McLeodUSA WorldCom</b>  2.5%
<b>Business-hour call failure rate ■</b> How often a modem call to the provider gets through successfully during weekday business hours. A failure would include a busy signal, ring no answer, modem problem or logon failure. The lower the CFR, the better. <i>Average for market:</i>	<b>AT&amp;T Juno MSN</b>  2.4%	<b>BellSouth Qwest SBC Southwestern Bell/ Verizon-East (tie)</b>  3.1%	<b>AT&amp;T (BIS) McLeodUSA XO</b>  3.1%
<b>Average total Web fail/timeout ■</b> Any error message that appears as a dialog box for the Internet Explorer browser is considered a Web page failure. Any download that takes longer than 4 minutes to complete is canceled and considered a Web page timeout. A low percentage is considered better. <i>Average for market:</i>	<b>AT&amp;T/AOL (tie) EarthLink/Prodigy (tie)</b>  0.6%	<b>BellSouth Verizon-East SBC Ameritech</b>  0.6%	<b>AT&amp;T (BIS)</b>  0.5%

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## Pop quiz

Answer these questions to find out how well your network performs.

■ BY JEFF DREW, SHAD PETERSON AND AARON MEYERS

What is network performance? Latency, throughput, availability or utilization? The correct answer is all of the above.

Optimizing network performance involves making selective use of more advanced functionality, but not adding so much complexity that the network is unmanageable. It means making your network infrastructure more application aware. Consulting firm Greenwich Technology Partners developed this quiz to help you assess the health of your network.

1. What is the maximum number of router hops in your network?
  - a. Less than three.
  - b. More than three, less than five.
  - c. More than five.
2. What is the maximum latency on the North American portion of the WAN?
  - a. Less than 60 msec.
  - b. Less than 100 msec.
  - c. Less than 120 msec.
3. How much jitter occurs on your network?
  - a. 20 msec or less.
  - b. 40 msec or less.
  - c. 80 msec or less.
4. What is the difference between your peak and off-peak response time?
  - a. Less than 20% of the low-hour response time.
  - b. Less than 40% of the low-hour response time.
  - c. Less than 100% of the low-hour response time.
5. How often do network outages isolate remote sites?
  - a. Never.
  - b. Once a year.
  - c. Monthly.
6. Do you make routing decisions based on application protocols above the IP protocol layer (multicast, user ID)?
  - a. Only at our Internet gateway.
  - b. Between regions.
  - c. At every kind of routing layer we can.
7. What's the best way to improve your network? It needs to be more:
  - a. Flexible.
  - b. Scalable.
  - c. Modular.
8. Do your remote users experience the same application performance that your central office users experience?
  - a. Yes.
  - b. For the most part.
  - c. Not at all.
9. What's your packet drop rate?
  - a. 1%.
  - b. 2%.
  - c. 3%.
10. Do you trade off lower transmission speeds than you need to reduce bandwidth costs?
  - a. Absolutely.
  - b. Sometimes.
  - c. Never.
11. How often do users experience time outs within the corporate LAN?
  - a. Occasionally.
  - b. Rarely.
  - c. Never.
12. What is the peak sustained processor utilization on your core routers?
  - a. Less than 25%.
  - b. 25% to 50%.
  - c. Greater than 50%.
13. What is the peak sustained processor utilization on your edge routers?
  - a. Less than 25%.
  - b. 25% to 50%.
  - c. Greater than 50%.
14. What is the target bandwidth utilization on your WAN links?
  - a. Less than 25%.
  - b. 25% to 50%.
  - c. Greater than 50%.
15. How often do you exceed your target bandwidth utilization?
  - a. More than an hour per day.
  - b. Less than an hour per day.
  - c. An hour or less per week.
16. Does adding server processing capacity boost application performance for end users?
  - a. Always.
  - b. Often.
  - c. Only occasionally.
17. Does your help desk receive more "application not available" than "server not available" reports?
  - a. Every day.
  - b. Now and again.
  - c. Never.
18. Does your network support protocols other than IP (SNA, IPX, DLSW)?
  - a. No.
  - b. Less than 10% of total traffic.
  - c. More than 10%, less than 50% of traffic.
19. Does your network provide the same performance levels across primary and redundant circuits and architecture?
  - a. Yes.
  - b. No, but it should.
  - c. No, and doesn't need to.
20. What is the primary reason you'd implement quality of service?
  - a. Manage existing performance affecting traffic congestion.
  - b. Avoid possible performance impacting traffic congestion.
  - c. Develop service application offerings around traffic shaping.

## Score yourself

Every A counts for three points; every B counts for two points; and every C counts for one point. If your score equals:

**20 to 33 – Slow network:** You have to improve your network performance with reengineering and process structuring. An application-aware infrastructure assessment can assist in this effort. This

approach reviews current application profiles, traffic profiles and existing infrastructures to develop an approach to remedy all performance problems.

**34 to 51 – Acceptable performance:**

You should examine improved performance and network failure tools such as synthetic transaction monitors or high-volume transaction monitors that provide insight into rare slow transactions.

You also might benefit from one or more of the following network performance approaches that:

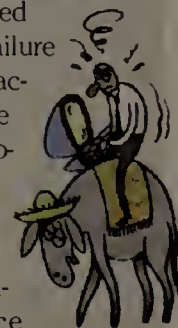
- Define the target for quality of service (QoS) and translate these service-level agreement targets into specific rules for network behavior.
- Enable QoS for the corporate infrastructure.
- Work to define the tool sets that will enforce the QoS policies.
- Classify the performance metrics required for mission-critical traffic.
- Develop a complete, end-to-end QoS model.

**52 to 60 – Fast network:** Your network has great performance consistently. You'll need to capacity plan and baseline new applications such as VoIP and video to keep up this performance.

Perhaps you should investigate data engineering considerations such as using MPLS for convergence.

Drew is practice director of application and systems performance, Peterson is practice director of internetworking, and Meyers is director of strategic operations for Greenwich Technology Partners, a leading network infrastructure consulting and engineering firm. They can be reached at [jdrew@greenwichtech.com](mailto:jdrew@greenwichtech.com).

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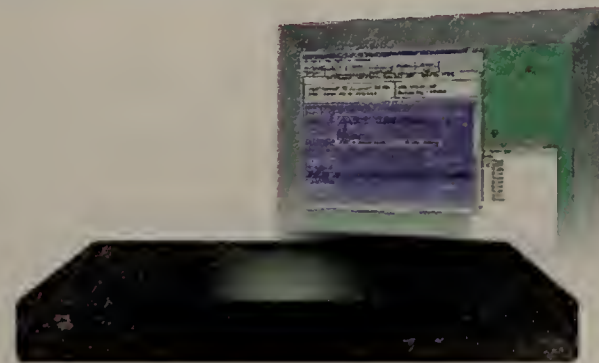
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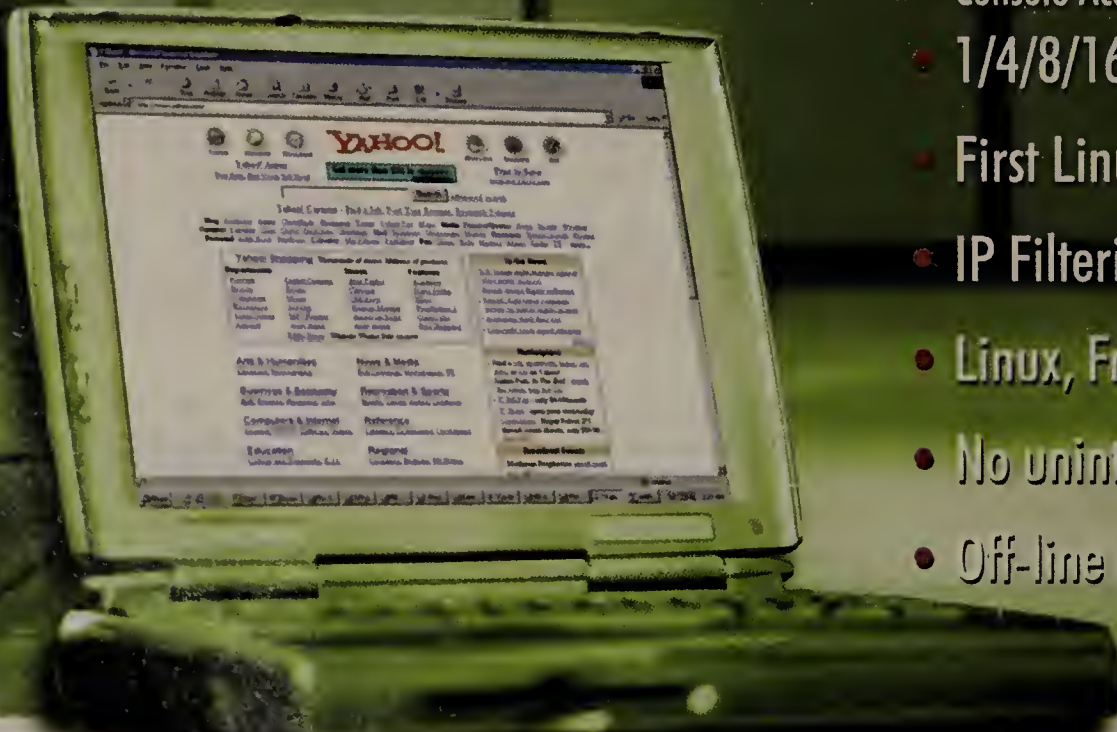
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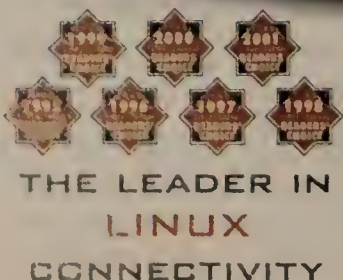
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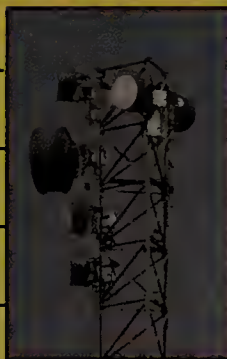
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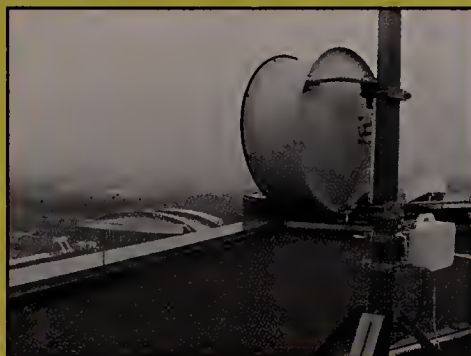
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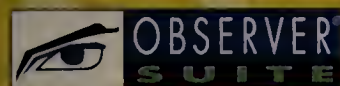
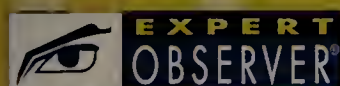
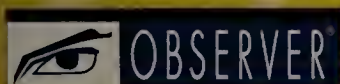
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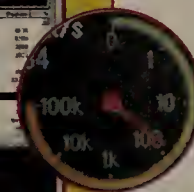
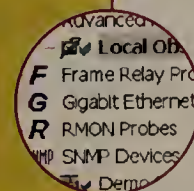
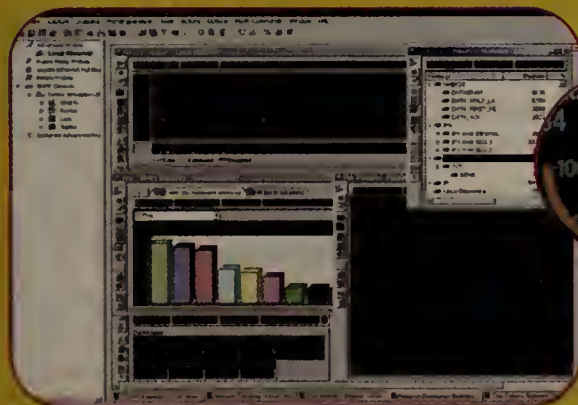
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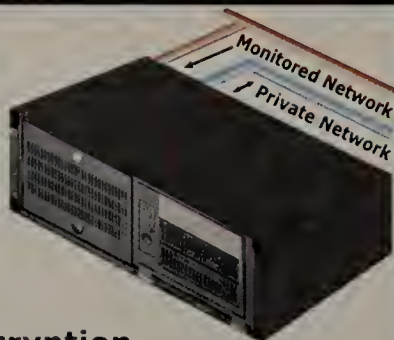
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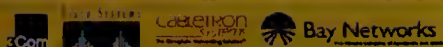
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IFB/RFP/RFQ. NO. 201062

## DESCRIPTION Information Technology Training Services

Metro-North Railroad and other affiliate MTA Agencies are seeking the services of qualified firms to provide Information Technology Training Services. The required training will support all areas of Information System Technology such as Mainframe Operating System, Application Software, and Microcomputer hardware/software.

The initial contract term is for a total of three (3) years with Metro-North Railroad reserving the contract option to renew for two (2) additional years.

DUE DATE/TIME 9/5/2002 - 5:00 p.m. (Close of Business)

CONTACT PERSON Akbar Lotfipour  
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**EQUAL EMPLOYMENT OPPORTUNITY:** Contractors will be required to comply with all applicable Equal Employment Opportunity laws and regulations. **2. INELIGIBLE BIDDERS:** All Contractors will be required to certify that they are not on the U.S. General Services Administration's List of Parties Excluded from Federal Procurement or NonProcurement Programs. **3. MINORITY/WOMAN/DISADVANTAGED BUSINESS ENTERPRISES:** Metro-North Commuter Railroad hereby notifies all proposers that it will affirmatively insure that in regard to any contract entered into pursuant to this advertisement, Minority/Woman/Disadvantaged Business Enterprises will be afforded full opportunity to submit Proposals in response to this invitation and will not be discriminated against on the grounds of race, color, sex or national origin in consideration for an award.

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**SALARY:** \$48,984 - \$67,992 (Dependent upon education and/or experience).

**How to apply:** Interested candidates must submit a Florida Community College at Jacksonville application, resume, cover letter addressing the qualifications of the position and unofficial copies of transcripts. An Administrative/Faculty/Professional application can be downloaded from our web site at [www.FCCJ.org/HumanResources](http://www.FCCJ.org/HumanResources), obtained at the Human Resources Department at 501 W. State St., Jacksonville, FL 32202, by calling (904) 632-3210 days and (904) 632-3160 evenings/weekends or by e-mail to [employment@fccj.org](mailto:employment@fccj.org). FCCJ is an equal access/equal opportunity employer.



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**Systems Administrators** - Req. bachelor's degree; 3-5 yrs bkgd, training or exp in Unix, C & Oracle, as well as telecommunication bkgd incl administration & configuration. Also need exp with IBM mainframe systs incl MVS, JCL, CICS & COBOL.

**Network Administrators** - Req. bachelor's degree in comp sci or eng'g; exp. bkgd or training must incl computer networking & data communications, Oracle database admin. Must have extensive exp in LAN & WAN networking & server admin with Microsoft & Unix platforms.

**Object-Oriented Designers/Developers** - Req. bachelor's degree or equiv in comp sci or eng'g; object-oriented bkgd incl Java & C++, as well as Unix operating system & Sybase or Oracle RDBMS.

**Communications Systems Software Developer** - Req. Bachelor's degree or equiv in comp sci or eng'g with 3-5 yrs. bkgd; Must have experience in SNMP, Frame Relay, UNIX, C, Socket Interface, Network Node Manager, TCP/IP, Open View, Shell scripting, Oracle SQL, Configuration Management Software (knowledge of Sablime a big plus).

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**F/T Manager, Supply Chain Technology:** Translate company's supply chain business requirements into software application models & ensure knowledge transfer on supply chain management solutions & best practices. Responsible for the translation of requirements into solution practices & providing data analysis. Responsible for the translation of requirements into Solution Architecture & ensuring the knowledge transfer to business users. Apply systems analysis techniques and procedures to identify business functional specifications & develop specifications. Develop management reports & exception workflows based on statistical analysis. Document, track & control solution and product related issues & participate in resolution of cross-project issues. Manage multiple projects & tasks. Utilize knowledge in web-based technologies such as Visual Basic, C++, Visual Interdev, Borland C++ Builder, COM & ASP to work w/ standard screens and workflows. Implement I2 and/or Manugistics, Supply Chain & Logistics applications inc: Demand Planning, Replenishment Planner & Supply Chain Strategist as well as work w/ Oracle. Must have Master's degree in Computer Science, Transportation Management, any Engineering discipline or related field. Must have 3 yrs. exp. in job offered or position w/ same duties. Send Resume: PSS World Medical, Inc., Ann Christante, 4345 Southpoint Blvd., Jacksonville, FL, 32246

**Progr. Analyst:** Study user req., procedures & problems to automate processing & reports, identify problems & modify coding. Carry testing, change control & management. Des., dev. and implement web based applications. Develop API/Middleware Use Java I/O, C, C++, AWT, EJB, AMI, servlets, applets, Swing RDBMS, JDBC, Oracle, Java bean, JSP. Req. BS in Eng/CS +1.5 years exp. Please send resume: Ganeshji Inc. 3617 N Pan Am Exp Way, San Antonio, TX 78219

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**Programmer Analysts** to analyze, design, test, maintain and support internet/intranet applications using Java, HTML, ASP, Java Script, JSP etc under Unix & Windows OS; design/develop custom applications in a client server environment using VB, Oracle, MS SQL Server and GUI tools under Windows NT OS; provide on site maintenance support to clients. Require BS or foreign equiv in CS or Engineering (any branch) with 2 yrs of relevant exp. Highly competitive salary. Travel to client sites involved. Resumes to Advanced Computing Technologies, Inc., 3355 Breckinridge Blvd. Suite 128, Duluth GA 30096.

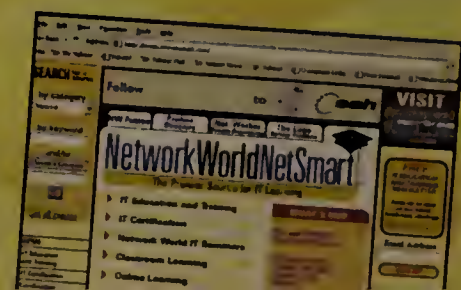
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F/T Application Developer: Responsible for the research, design, development, testing, maintenance & deployment of software applications & working w/system development & integration methodologies. Communicate effectively w/ external & internal customers. Work w/ mainframe including COBOL, IMS, Assembler, Easytrieve, Mark IV, JCL & client server programming technologies such as Visual Basic & C++. Must have Bachelor's degree in Computer Science or related field. Educational & or work background must have included the above reference skills. Send resume: AFLAC c/o Catherine H. Coppedge, 1932 Wynnton Road, Columbus, GA 31999.

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# NetworkWorld

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## WorldCom

Continued from page 1

data carrier. That would be a nightmare."

Customers are being advised to sit tight and monitor service levels before doing anything rash. Those who can, should distribute traffic among other providers. Analysts also suggest that businesses signing new contracts should consider shorter-term commitments that will give them an out if service levels take a turn for the worse.

They add the caveat that shorter contracts will be more costly. A one-year contract, for example, could cost 20% more than a three-year contract. Contracts less than a year will provide a month-to-month out but boost costs another 20%, analyst say.

Gartner suggests businesses sign contract extensions of longer than six months to avoid higher month-to-month pricing, but take advantage of special deals, such as WorldCom's Customer Satisfaction and Loyalty Program, which provide a limited-time offer of renewal incentives, including a low-risk, six-month extension.

## Reliance levels vary

How company's react to the WorldCom bankruptcy will, of course, depend on how heavily they rely on WorldCom's varied services. WorldCom offers a full range of data network services — including frame relay, VPN and Internet — the usual portfolio of corporate voice services, and hosting services through Digex. Digex is maintained as a separate public company and was not listed in WorldCom's bankruptcy filing. WorldCom says it is committed to continued funding of the managed hosting provider. Nonetheless, there is customer concern.

A director of e-business strategy at a large capital goods manufacturer says his company is reviewing options because its contract with Digex will come due next year. "This industry changes rapidly, so even before the WorldCom announcement we were verifying where we're at, what we're doing and the service levels," he says. "The WorldCom situation didn't cause us to do anything different, but it did bring more awareness to the fact that you need to be careful. It's not just Digex, it's any company you're looking at — you need to have business continuity and back-up plans."

Few customers and industry analysts expect WorldCom's network to go dark. The company does, after all, have \$107 billion in assets; a fact that analysts say distinguishes WorldCom from others such as Enron. Further, the Federal Communications Commission requires a minimum of 31 days' notice before any services are turned off.

The biggest concern is that customer service and network performance will suffer as WorldCom focuses on its balance sheet. The carrier announced it would lay off 17,000 employees, about 28% of its workforce, even before

## Customer checklist

### Things to consider following WorldCom's bankruptcy filing:

- ✓ **Double up:** Make sure you have a second carrier handling at least some of your traffic. Setting up contingency plans can take as long as two months.
- ✓ **All bets are off:** Contract "out clauses" in case of bankruptcy are trumped by bankruptcy law, according to Hank Levine, an expert in telecom contract negotiations. Now that WorldCom is in bankruptcy, its creditors will be loathe to let customers go. An abrupt termination could cost you millions of dollars.
- ✓ **Deal smart:** You can negotiate clauses in new contracts that give you rights when the carrier's condition deteriorates, Levine says, such as allowing you to hire the carrier's employees. Other types of clauses will give you flexibility to move should the provider's credit rating plummet.
- ✓ **Deal short:** If you can handle the extra cost that short-term contracts carry, it's best now to go with shorter commitments while the market shakes itself out.
- ✓ **Seize the moment:** Now may be a good time to sign a contract with WorldCom because an agreement made after a bankruptcy filing typically gets preference, Levine says.

it revealed its \$3.8 billion accounting debacle last month.

"The layoffs certainly are not going to help customer service, but I don't think we're going to see a dramatic change," says Steven Harris, research manager of ISP markets, business network services and IP VPNs at IDC. "Predictions that their service is going to be just awful are likely exaggerated."

Providian Financial in San Francisco says it has concerns about service levels going forward, but has yet to see any degradation. It gets voice, data, paging and Web hosting services from WorldCom.

"We expect WorldCom to live up to the contract and their commitment to provide us good service, and they're doing that now," a spokeswoman says. She adds that Providian contracts with multiple carriers, including AT&T and Pacific Bell, and is not actively looking for alternative carriers.

## Uncle Sam watching carefully

The U.S. Department of Defense, which this spring awarded WorldCom a 10-year networking contract, carefully monitors service levels and has clearly delineated performance obligations. Those contractual obligations are still valid and the Defense Department "anticipates no interruptions in service," a spokeswoman says.

Should service deteriorate beyond agreed-upon levels, though, the agency could take recourse. "Each contract contains remedies for a contractor's failure to perform. These contractual remedies include the ability to recover liquidated or actual damages, collect monetary credits for service outages, and in severe cases, give [the Defense Information Systems Network] the ability to terminate the contracts for default or cause," the spokeswoman says.

Analysts don't expect a mass exodus from WorldCom in the near term because most customers have two- or three-year contracts. As contracts expire, though, customers likely will look elsewhere.

"Make sure those providers aren't facing the same problems WorldCom is," advises Kate Gerwig, principal analyst of network services at Current Analysis. "The accounting ripple effect

probably isn't at an end."

In a report on the bankruptcy, Gerwig notes that the U.S. government, one of WorldCom's biggest customers, "has already taken steps to ensure that no new contracts are signed with WorldCom."

The New Jersey Department of Transportation earlier this month terminated its contract with WorldCom, which ran its EZ-Pass toll collection system. A spokesman says the department instead hired a contractor that specializes in toll collection systems, but WorldCom's financial problems "certainly didn't help."

Others, however, are sticking it out. Supplemental insurance company AFLAC in Columbus, Ga., says it will stay with WorldCom as long as service levels meet expectations.

AT&T and Sprint say they are seeing an uptick in inquiries from customers investigating options.

The trouble for business users is there are few stable providers left from which to choose. Just last week, AT&T announced a \$12 billion quarterly loss, most of which was attributed to one-time charges for its cable division. Qwest also has been facing financial trouble and a Securities and Exchange Commission investigation over accounting practices.

Analysts expect all this financial turmoil to lead to industry consolidation, and that may be coming to fruition with last week's bid by Level 3 Communications to buy Williams Communications.

"The chaos may not be over, but hopefully any further consolidation is orderly and progressive and some order and stability is restored, especially among the bigger players," National's Seif says. "The problem is that this industry's culture is historically a bit slow moving and may not be able to act fast enough to prevent further bleeding before a turnaround."

## Ripple effect?


One unknown is if WorldCom's woes will ripple throughout the industry. The hundreds of carriers that exchange traffic with WorldCom and WorldCom equipment suppliers will have trouble collecting payments and debts.

"WorldCom's payments to [regional Bell operating companies] that terminate their customer circuits will have highest priority," says Shing Yin, a senior analyst at telecommunications research firm RHK. "If RBOCs lose confidence in being able to collect payments from WorldCom, they may shut off the last-mile circuit, effectively putting the customer out of WorldCom's reach. Equipment vendors will likely have lower priority in terms of getting paid."

That means customers can expect WorldCom to hold back on expansion efforts or the introduction of new services, analysts say. At the same time, though, current performance shouldn't be impaired. Keynote Systems, a company that tracks Internet performance from 50 cities, says Internet performance has not taken a hit since WorldCom, the largest carrier of IP traffic in the country, filed for bankruptcy protection.

Another question is what WorldCom will look like once it emerges from Chapter 11. WorldCom has said it plans to sell off some assets, such as its wireless business and its South American operations, but retain MCI and UUNET. Most analysts expect WorldCom's U.S. operations to stay largely intact.

Still, customers should remain vigilant. "Things we always assumed were true, like telephone companies don't go bankrupt, are not true. So people have to take steps," says Hank Levine, a partner in Levine, Blaszk, Block and Boothby, a firm specializing in telecom contract negotiations. ■



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# WorldCom could take different paths

Experts see three possible scenarios for company in wake of Chapter 11 filing.

■ BY MICHAEL MARTIN

WorldCom CEO John Sidgmore says customers should look for his company to emerge from bankruptcy in about a year.

What might that company look like then?

Industry experts paint three possible scenarios: WorldCom could emerge as a reorganized independent company; be acquired lock, stock and barrel; or be sold off in pieces.

Each possibility carries different ramifications for WorldCom's business customers.

Sidgmore told reporters last week that the carrier will emerge

from bankruptcy in nine to 12 months, but that might be a bit optimistic, says Hank Levine, a partner in Levine, Blaszak, Block and Boothby, a firm specializing in telecom contract negotiations. He says a year to 18 months might be more realistic.

The outcome that would have the least effect on customers would be a leaner, meaner WorldCom emerging from bankruptcy with all its business units intact. The only question then, Levine says, is whether the carrier could maintain the customer service levels it did before bankruptcy.

WorldCom's customer service levels likely will slide gradually,

Levine says, as the company makes the 17,000 job cuts it announced in June.

Pat Brogan, assistant director of research for investment research firm Precursor Group, says this is the likeliest of the three scenarios.

"We expect them to come out of bankruptcy, and we expect them to come out with all of their significant pieces," he says.

WorldCom's creditors want to get as much value as possible out of the company and need to keep the main pieces — especially UUNET — intact to make WorldCom an efficient competitor in the business telecom market,

Brogan says.

The second possible outcome would see significant portions of WorldCom sold off to competitors. This is the result that could be most disruptive for customers, according to Levine.

Customers that were used to dealing with one vendor for a variety of communications needs would possibly have to deal with several, he says.

The third possible outcome would involve WorldCom being sold off as a whole company. This wouldn't inconvenience customers too much, Levine says, unless the buyer happened to be someone with which WorldCom customers didn't want to do business. For instance, if WorldCom were purchased by a group of investors led by a bank, competing banks that were WorldCom customers likely wouldn't be eager to remain with WorldCom.

IDT, a national telecom provider, has put in a \$5 billion bid for WorldCom's MCI consumer and small business unit, along with WorldCom's Brooks and MFS Communications fiber units. Levine says the IDT offer is too low and won't be considered seriously. He expects more serious offers will be several months in coming.

In the telecom market, there aren't many potential buyers for all of WorldCom. Three of the four regional Bell operating companies — Verizon, SBC and Bell South — are considered the most likely candidates for a complete takeover.

The fourth RBOC, Qwest, isn't considered a likely suitor because the company has its own serious financial problems and already has a national data network in place.

Michael Powell, chairman of the Federal Communications Commission, has stated that the FCC might be willing to support an RBOC takeover of WorldCom. But the three potential RBOC buyers are already heavily laden with debt and might not want to take on more.

Also, under the Telecommunications Act of 1996, the RBOCs can't offer long-distance services in states where they are the incumbent local providers until they have proven to the FCC that there is competition in those states. That would mean if Bell-

## The choice pieces

**If bankruptcy forces WorldCom to be sold off piecemeal, as some predict, here are the parts most likely to be coveted:**

**UUNET:** the largest provider of Internet services in the U.S.

**MCI:** provides local and long-distance voice services to thousands of U.S. consumers and businesses.

**Brooks Fiber:** a facilities-based provider of telecom services to business, government and consumers in more than 50 markets.

**MFS Communications:** a facilities-based provider of telecom services to business and government.

## Will Genuity be next to fall?

■ BY JENNIFER MEARS

WOBURN, MASS.—Verizon has announced it will not reintegrate struggling Genuity into its business, a move that could effectively push the IP network services company into bankruptcy, analysts say.

The news last week dealt another blow to the already-troubled telecommunications sector that has seen a string of bankruptcies, the most recent being industry giant WorldCom. Verizon pointed to a number of reasons behind its decision, including market conditions and business needs.

"We've had a process under way for some time to assess the reintegration of Genuity into Verizon. We took into account market conditions, and, yes, that includes the shakeout that's currently under way in the telecom industry, as well as the strategic needs of Verizon and the interests of our shareholders going forward," says Bob Varettoni, a Verizon spokesman.

GTE and Bell Atlantic merged to form Verizon in July 2000. As a condition of that merger, the Federal Communications Commission required GTE to spin off GTE Internetworking, which became known as Genuity. GTE also was given the right to convert its shares into a controlling interest in Genuity once it met certain conditions.

In its announcement last week, Verizon said it gave up its right to take control of Genuity. It also said that it is no longer obligated to make further loans to Genuity. As a result, Genuity said that it is now in default in its credit agreements with Verizon and a consortium of banks.

"Verizon's decision to cancel its option to integrate Genuity and its credit agreement was unexpected and a disappointment to us," says Paul Gudonis, CEO of Genuity.

Earlier in the week, Genuity sought access to \$850 million remaining on a \$2 billion line of credit

extended through a global consortium of banks in September 2000. It received about \$723 million, with eight of nine banks fulfilling their obligations, giving Genuity about \$1.3 billion cash on hand. Deutsche Bank was the only member of the consortium not to grant funds, resulting in a lawsuit by Genuity.

Genuity now has about \$3 billion in debt, \$1.15 billion of which is due to Verizon.

Courtney Quinn, a senior analyst at The Yankee Group, says a bankruptcy filing for Genuity is a "definite possibility. Conventional wisdom indicates that



**“We will evaluate all of our options, which could include seeking another strategic partner or restructuring our operating plan.”**

**Paul Gudonis**  
Genuity CEO

the only way out of this is a bankruptcy.”

A Genuity spokesman says the company is reviewing its options, which could include bankruptcy, but says Verizon still is committed to Genuity's business. Verizon says it will honor a five-year, \$500 million commitment to purchase services and will continue to resell Genuity's IP networking services, including working together to provide voice over IP. Genuity also is in talks with the banks to review the effect of the decision, and Verizon has said that it will be supportive of those efforts.

"Now that Verizon has elected not to reintegrate Genuity, we will evaluate all of our options, which could include seeking another strategic partner or restructuring our operating plan while we address this situation," Gudonis says. ■

South bought WorldCom, it might have to release all WorldCom customers in, for example, Florida.

However, all three RBOCs have made progress in getting long-distance approvals in their local states and might have the approvals process finished by the time WorldCom's bankruptcy winds up.

But even if the RBOCs do bid on WorldCom, it might not be something companies want.

"What comfort would that give to a customer?" asks Lisa Pierce, an analyst with Giga Information Group and a *Network World* columnist.

"No one walks up to me and says they love their RBOC," Pierce adds.

Ovum isn't forecasting a rosy future for WorldCom. In a recent research note, Ovum says WorldCom is likely too large to be sold as a complete entity and probably will be broken up.

Even then, Ovum says any potential buyers will wait until making bids for WorldCom to drive down the purchase price.

Until WorldCom's bankruptcy is resolved, customers might not see much in the way of new services, Pierce says.

WorldCom won't have much money to launch services, she says, and the carrier's attention will be focused mostly on the bankruptcy proceedings, she says.

"The best-case scenario is that they maintain the status quo," Pierce says. ■



## Microsoft

Continued from page 1

which will stretch over the next three to four years, is long on positioning and challenges, and short on products.

Microsoft has delivered the tools to build Web services applications but not a competent platform on which to deploy. Microsoft rivals IBM, Sun and others also are scrambling to unite Web services tools and platforms.

"It's classic Microsoft — they build the development tools and the language, and then they come around and back-fill everything else," says John Studdard, CTO for Virtual Bank in Palm Beach Gardens, Fla. "We have

been anxiously awaiting the news that they are finally rolling up their sleeves and getting under the hood of .Net."

Studdard, who has used Microsoft's BizTalk Server, an XML transformation engine, to support a collection of .Net applications, has been tweaking the server with his own code.

"BizTalk and .Net; that whole marriage is still vaporware," Studdard says. "We haven't been able to deploy the back-end servers the way we want to because to support .Net they use a hodgepodge of tool kits."

In June 2000, Microsoft unveiled .Net, but beyond the release of Visual Studio.Net and the company's participation in creating XML



**“We have a lot of execution still to do, but our direction [with .Net] is sound.”**

**Bill Gates**

Chief software architect, Microsoft

specifications, .Net remains a loose connection of renamed products and XML add-ons.

During a press and analyst briefing last week, Microsoft executives said they were happy with the foundation the company has created but admit there is work to be done and mistakes to correct.

"We have a lot of execution still to do, but our direction is sound," said Bill Gates, Microsoft's chief software architect. Gates said that direction is to deliver software that connects information, people, systems and devices.

Gates admitted Microsoft has made missteps in the past two years, including a set of services called .Net My Services that gave Microsoft control over user data. Those services, such as Passport, now are being reconstructed. Gates also said the company has made only modest progress in delivering software as a service, such as self-updating features, in providing rich XML data to servers and clients. Trust and user identification have become gaps that must be filled before .Net can succeed, he added.

"Microsoft has made a series of incremental steps that collectively show it's making progress and that people are using its tools and platforms to build .Net applications," says Dwight Davis, an analyst with Summit Strategies. "But there are a lot of elements needed to deliver the full vision on .Net into the future."

One of the most important is security, especially a standard way to establish identity and trust for users and machines.

Those capabilities are essential in a Web services world where users and code routinely cross corporate boundaries.

Microsoft plans to build an identity and trust infrastructure around the WS-Security specification it developed with IBM and VeriSign and which is now under the guidance of the Organization for the Advancement of Structured Information Standards. It also has agreed to support the Security Assertion Markup Language (SAML) standard for user authentication and authorization.

Microsoft also has begun an ambitious project called Palladium, a combination of hardware and software for asserting identity of a machine, creating safe "sandboxes" for code execution and securing access to information. But Palladium, part of Microsoft's \$100 million Trustworthy Computing initiative, will take a unified industry effort to succeed.

"Trust and identity are long-term and difficult problems that will take years to solve," says Dana Gardner, an Aberdeen Group analyst.

Other bumps have been problems in delivering Windows.Net Server, which has been delayed twice. The server is the first with native support of the .Net framework, .Net's run-time engine. Release is expected by yearend.

A few months later, Microsoft will graft on TrustBridge, a set of components to join user identities between distinct Active Directory deployments. Microsoft developed the product after identity became a pressing need for Web services deployments. TrustBridge also will include support for WS-Security. But much work remains to solidify WS-Security, including specifications to govern routing, policy, federation and reliability.

"We have the base infrastruc-

ture to send an [XML] message from Point A to Point B, but now we have to make it secure, reliable and transactional," says Eric Rudder, senior vice president of the developer and platform evangelism division.

But Windows.Net Server is only an incremental step toward the full .Net platform that will begin to take shape with the Longhorn release of the operating system, which is now more than two years out, according to Gates.

Longhorn will include what Gates calls his Holy Grail: a unified data store technology that lets users search across the Windows platform, providing a foundation for ubiquitous access to XML-formatted data for Web services applications.

The first taste of that is slated for release in the first half of next year with the Yukon version of SQL Server. Microsoft's Exchange collaboration server, however, won't add Yukon-like technology until its Kodiak release, likely sometime in late 2005 or 2006.

Those two servers along with the operating system would pull together a file system, a database and a store of unstructured collaboration data into one virtual data source based on technology similar to Yukon.

Microsoft also plans two updates to Visual Studio.Net, one to support Windows.Net Server and one for Yukon. Microsoft also is widening its options for developers, last week unveiling software to link .Net with Oracle databases and a partnership with Covalent Technologies that links .Net and Covalent's version of the Apache Web server (see story, page 61). ■

## Microsoft's licensing program kicks off; jury out on impact

**M**ore than a year after network executives were blindsided by Microsoft's announcement that it would change its volume licensing program, the deadline to enroll will pass this week, but it might take up to six months to see exactly how corporations reacted.

No issue has raised the hackles of Microsoft customers like Licensing 6.0, which was announced in May 2001 but delayed twice by an outpouring of anger from users. The plan has met with resistance because firms have to pay a hefty fee to enroll.

"We were looking at \$170,000 to upgrade from Office 97 to XP and \$70,000 a year for software maintenance," says Cam Scott, client support analyst for the city of Nanaimo in British Columbia. "We said thank you, Mr. Gates, and goodbye."

Scott is transitioning all his desktops to Sun's StarOffice, which amounts to \$70 per user for his nearly 400 users and \$6,500 per year for maintenance.

Scott also is in a holding pattern with his Exchange 5.5 mail server and Windows 2000 desktops as the city decides what to do with that software. "We're looking at Sun for e-mail and we'll probably just ride out Windows 2000 on the desktop without going to the new licensing program," he says.

In a recent survey of 1,400 IT executives worldwide conducted by Information Technology Intelligence and Sunbelt Software, 90% of Microsoft customers said they believe their licensing costs will rise under Licensing 6.0. Some users and analysts have reported that those increases could go as high as 100%.

Microsoft says upwards of 80% of customers will see a decrease or no change at all in their licensing costs. The company says the remaining 20% might be best served by staying on the software they now have deployed.

"If Microsoft gets a 25% uptake with 6.0 that would be considered good," says Laura DiDio, an analyst with The Yankee Group. "But we will have to wait one or two quarters of financial reports to see how well Microsoft has done with this program."

The new Licensing 6.0 requires users to have upgrade rights to new software, and the Software Assurance maintenance program replaces all of Microsoft's current upgrade programs. For Software Assurance, users must be on the most current version of software and pay a fee equal to 29% of the software license for applications and 25% for servers.

Users who choose Licensing 6.0 and Software Assurance face a 10% discount when they decide to upgrade.

— John Fontana

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# Microsoft .Net comes to Apache for a price

■ BY MATT BERGER

SAN DIEGO — Covalent Technologies, which sells software that sits on top of the popular free Apache Web server, last week announced a new version of its product that lets developers use Microsoft's .Net programming tools to write Web applications that run on Apache.

The company released its Enterprise Ready Server, which is based on Version 2.0 of Apache, and comes with new support for Microsoft's ASPNet (Active Server Pages) development platform.

Previously, ASPNet applications could only run on Microsoft's Internet Information Server (IIS), a competitor to Apache. As a result, Covalent says, major Apache users, such as Morgan Stanley

open source project.

The added support for Apache comes one day after Microsoft announced that it would extend its .Net platform to better

work with database software from Oracle.

"This is just another example of how Microsoft is working with other application vendors to make .Net interoperable

with other platforms," Zemlin says.

*Berger is a correspondent with the IDG News Service's San Francisco bureau.*

**“This is just another example of how Microsoft is working with other application vendors to make .Net interoperable . . .”**

**Jim Zemlin**

Vice president of marketing, Covalent

Dean Witter & Co. and Bear Stearns & Co., have used both IIS and Apache to accommodate various Web applications designed inside their organizations.

"They can now consolidate their applications on a single platform," says Jim Zemlin, vice president of marketing at Covalent. Customers also will be able to write applications for Apache 2.0 using Microsoft's Visual Studio .Net development tools.

Apache is the most widely used Web server, according to a survey from Netcraft. Many users choose the technology over IIS because of its better track record with reliability and security, according to Stacey Quandt, an analyst with Giga Information Group.

With help from Microsoft, Covalent says it developed a module for its Enterprise Ready Server that would let ASPNet applications run on Apache 2.0. However, organizations that use the freely available Web server won't be able to run ASPNet applications unless they purchase Covalent's software. Zemlin says the company doesn't plan to release an open source version of its .Net module.

Brian Behlendorf, president of the Apache Software Foundation and one of the original authors of the technology, says Covalent's work adding support for ASPnet applications bodes well for Apache, even if the software is not free to Apache users. He notes that Covalent employs a number of developers that contribute to the Apache

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## BackSpin Mark Gibbs



# Breaking Windows

I was intrigued to read recently that Wal-Mart is going to sell a new budget PC line. The hardware, made by Microtel, ranges from a \$300 machine powered by an 850-MHz AMD processor to a \$600 box

with a 1.8-GHz Intel Pentium 4 processor. While those might seem to be great prices, the thing that makes it possible is that the machines don't have Windows preinstalled. What they offer instead is LindowsOS.

LindowsOS, from Lindows.com ([www.lindows.com](http://www.lindows.com)) is a heady combination of Linux and Wine.

Wine, according to Wine Development HQ ([www.winehq.com/about/](http://www.winehq.com/about/)), is "an implementation of the Windows Win32 and Win16 APIs on top of X and Unix. Think of Wine as a Windows compatibility layer. Wine provides both a development tool kit (Winelib) for porting Windows sources to Unix and a program loader, allowing many unmodified Windows 3.x/95/98/ME/NT/2000/XP binaries to run under Intel Unixes. Wine works on most popular Intel Unixes, including Linux, FreeBSD and Solaris."

LindowsOS supports most Windows applications with the exception of games — that is to say, it won't run any application that requires DirectX. What the Lindows folks did to improve on Wine was to focus on supporting applications rather than knocking off support for each Windows API.

This, I am told by John Bromhead, vice president of marketing for Lindows, lets the company build support for specific target applications, giving it the opportunity to bring the system to market quickly.

Anyway, LindowsOS' Windows applications support is solid enough to support Windows productivity offerings such as Office 2000 and Lotus Notes. And if you don't fancy shelling out for Office, LindowsOS, of course, supports Sun's StarOffice 6.0.

What I find so interesting about StarOffice (which in the 6.0 release, I am told, is solid and fast and can exchange data with Microsoft Office applications) is that the native format of StarOffice applications is XML. This means that once you migrate documents to StarOffice your ability to integrate them into knowledge management systems is much greater than with Microsoft's native formats.

And this is the key to anyone considering migrating to the likes of LindowsOS — the ability to get your data into the new system. If that is possible, then the next hurdles are having the right applications to work with the data and a framework (an operating system) in which the data and applications exist that is fast, full featured and reliable.

LindowsOS looks capable of doing all this and more, which means that, for the first time, there might be a viable alternative to Microsoft Windows.

Better still, Lindows offers what it calls the Click-n-

Run Warehouse, a repository of 1,644 applications that can be installed online with one click. The cost of full access to the library is a paltry \$99 per year.

So let's assume that LindowsOS is all that it claims to be. Why wouldn't you consider making it the underpinnings of your corporate IT strategy?

The forthcoming general release will support the majority of PCs (the current Wal-Mart version is optimized for Microtel platforms) and the price of LindowsOS, probably about \$100, will be appealing.

Installing LindowsOS is said to be a few minutes, with networking and other facilities autoconfiguring themselves. Managing Linux-based systems is well-understood and should fit into most net management systems with ease.

In short, Lindows should be a very appealing strategic solution that has significant cost benefits.

So what would it take to get your company to switch? Success stories? Technical proofs? What would it take?

I mean, it's not like there aren't a gazillion IT people who claim to be desperate to jettison Microsoft from their corporate networks.

I think we have here perhaps the first serious contender that could take market share from Microsoft, but what do you need to be convinced?

*So tell me at [backspin@gibbs.com](mailto:backspin@gibbs.com).*

## 'Net Buzz News, insights, opinions and oddities



**By Paul McNamara**

### Weighing the true costs of spam filters

Depending on your point of view, spam filters are:

- A) Necessary.
- B) Evil.
- C) A necessary evil.

And the three might not be mutually exclusive.

Geoff Duncan is technical editor, subscriptions manager and Web developer for TidBITS, an e-mail

subscription and online publication that caters to the Macintosh crowd. He recently wrote about the results of his informal research into the effects that spam filtering by others is having on his organization's ability to electronically deliver TidBITS. (You can read his complete report at <http://db.tidbits.com/getbits.acgi?tbart=06866>.)

"In the last year or so, we've noticed a new trend: Some weeks, we get errors from hundreds [or even thousands] of subscribers whose servers refuse delivery of TidBITS issues," Duncan writes. "On the heels of these errors, we usually receive a flurry of complaints: 'Why didn't I get this week's issue?' or 'Please fix my subscription — I didn't get TidBITS today but your system says I'm still on the list.'"

The problem is false positives. Ham-handed filters are erroneously flagging TidBITS content as being spam — or in some cases, a virus.

While few will dispute that spam is to e-mail what grubs are to lawns, there might need to be more discussion about whether currently available spam filters and filtering techniques constitute an appropriate pesticide or a modern-day Agent Orange. Although he uses filters himself, Duncan has his doubts.

"Recently, we're starting to see signs that e-mail, often hailed as the Internet's killer app, is in danger of becoming an unreliable, arbitrarily censored medium," he says.

Take, for example, a whopping 10% of TidBITS recipients — 4,000 readers — failed to receive TidBITS this week simply because a TidBITS writer made a

passing reference to Viagra. Worse yet, in writing about the filtering fallout Duncan was reduced to referring to Viagra as "a well-known Pfizer drug for men," lest repeating the brand name cause his report to again run afoul of the filters.

Self-censorship has apparently become a way of life at TidBITS. And while simply avoiding the word Viagra might seem a small price to pay in the interest of spam control, it quickly becomes apparent that writing around these filters is easier said than done. Other examples from Duncan's file:

- Mentioning Napster in an article got TidBITS rejected by about 120 e-mail servers. (Duncan had to call the offensive proper name "a well-known peer-to-peer music swapping service.")

- Another story was blocked by more than 1,100 sites for mentioning a particularly annoying online ad campaign for video cameras. (Yes, it was X10, and no, Duncan could not risk printing the name in his piece about filtering.) Other sites rejected this story because it included the word "undress."

- The words "my" and "pictures" in succession kept another batch of TidBITS material from hundreds of intended recipients.

While the benefits of spam filtering are clear and clearly desirable, Duncan believes that not enough emphasis is being placed on the costs.

"As much as on-target filtering might save administrators and users time, money and trouble, filtering that backfires also has direct costs," Duncan says. "Part of that cost is passed off to the sender whose e-mail has been improperly identified: Every time spam filtering hits TidBITS, I get to track the problem down, deal with e-mail administrators and assuage irritated subscribers."

Those doing the filtering also pay, he says, in administrator time and the lost productivity — if not actual lost business — that can come with missing e-mail.

Something tells me this issue isn't going away any time soon.

*Yes, we use spam filters at Network World, but that shouldn't stop you from writing. The address is [buzz@nww.com](mailto:buzz@nww.com).*





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